



October 2, 2017

Mr. Philip Allen  
U.S. Environmental Protection Agency, Region 6  
1445 Ross Avenue  
Dallas, TX 75202-2773

RE: Submittal of 2016 Annual Groundwater Monitoring Report  
OU-1 Phase II RD/RA  
Tex Tin Superfund Site

Dear Phil:

Attached please find the Groundwater Monitoring Report for the Tex Tin Superfund Site OU-1 Phase II RD/RA for the 2016 groundwater sampling event, pursuant to the OU-1 Consent Decree. The groundwater sampling was completed in February 2016.

## RESULTS

In general, results are consistent with previous results from 2003 through 2015. As you can see in the attached report, there have been some exceedances of the Perimeter Action Levels (PALs). The exceedances observed in 2016 include the following general categories:

- In the Performance Monitoring Wells: Exceedances of arsenic and gross alpha particle at MW-61S and exceedances of gross alpha particle and combined Ra-226/228 at MW-32S.
- In the Compliance Monitoring Wells: one exceedance of beryllium (MW-25S), seven exceedances of gross alpha particle (MW-22S, MW-22M, MW-23S, MW-23M, MW-24M, MW-25S and MW-25M), and six exceedances of combined Ra-226/228 (MW-22S, MW-23S, MW-24M, MW-24D, MW-25S and MW-25M) at the compliance monitoring wells south of the Site.
- In the Detection Monitoring Wells: Exceedances of gross alpha particle and combined Ra-226/228 were observed in both NDC monitoring wells.

## EVALUATION CRITERIA

The evaluation of the effectiveness of the remedy was considered based on the Remedial Action Objectives (RAOs) and the overall intent of the remedy as described in the Record of Decision (ROD).



The RAOs for groundwater at the Site include:

- Prevent further degradation of the Shallow and Medium Transmissive Zone groundwater outside the operable unit boundaries
- Prevent migration of contaminated groundwater outside the operable unit boundaries in the Deep Transmissive Zone by addressing the site source materials and preventing further degradation of the Shallow and Medium Transmissive Zones

As further described in the ROD, the groundwater remedy for the Site is based on water management. Water management remedy components include:

1. Western Barrier Wall (WBW) to prevent westward migration of affected groundwater
2. Soil cover and grading to direct surface water away from the Site
3. Soil cover and vegetation to reduce infiltration
4. Evapotranspiration from the trees planted along the southern edge of the Site.

### Evaluation – Degradation and Migration

The results from the 2016 event mark the 14<sup>th</sup> annual groundwater sampling event. EPA's "*Evaluation of Trend Detection Techniques for Use in Water Quality Monitoring Programs*" <sup>(1)</sup> recommends the Mann-Kendall test for trends.

Mann-Kendall tests were conducted for all monitoring well/contaminant of concern (COC) pairs where at least one PAL exceedance had been detected, a total of 40 for the 2016 sampling event. Data from the past 10 monitoring events was entered into standard spreadsheets containing the Mann-Kendall test. The spreadsheets reported whether or not the data indicates a trend, either increasing or decreasing. The data entered included all results, regardless of the analytical method used. In the case of results lower than either the Reporting Limit (RL) for metals and VOCs, or results lower than the Detection Limit (DL) for Gross Alpha and/or Radium 226/228, the RL or DL was entered.

The results of the Mann-Kendall test, summarizing trends identified at the 80% confidence level, are included as Attachment 6 of the report. Of the 40 monitoring well/COC pairs, the results indicate that 17 (42.5%) are increasing, 16 (40%) show no trend and 7 (17.5%) are decreasing. The table below shows the results of the trend evaluation since it was started in 2009.

- (1) *Evaluation of Trend Detection Techniques For Use In Water Quality Monitoring Programs*, Lotus, J.C.; Ward, R.C.; Phillips, R.D.; Taylor, C.H. -EPA/600/53-89/037 Sept. 1989

Tex Tin Superfund Site Annual Groundwater Trend Analysis Results			
Year	Increasing Trend	No Trend	Decreasing Trend
2016	17	16	7
2015	19	12	9
2014	7	20	9
2013	6	12	20
2012	5	19	14
2011	2	20	16
2010	2	16	20
2009	2	23	13

Additional evaluations using the Mann-Kendall test will be conducted as additional data becomes available.

### Evaluation – Water Management

We have also evaluated the status of each of these remedy elements.

1. The groundwater elevation difference across the WBW indicates that the wall is performing as designed.
2. Monthly site inspections show no sign of water ponding, thus the grading appears to be appropriate.
3. As discussed during the 2017 Site Inspection, the Tex Tin Settling Defendants will continue to work with Genesis Energy during its redevelopment of the eastern portion of the Site to protect the remedy and ensure proper drainage across the Site.
4. The evapotranspiration barrier trees continue to appear healthy.

As discussed in our February 10, 2017 letter, and as approved by EPA in your email dated May 1, 2017, the Tex Tin Steering Committee will continue preparation of a Focused Feasibility Study (FFS) to evaluate site conditions and remedial alternatives that would address the issues in a manner consistent with EPA's guidance and the Site's groundwater containment remedy. It will also continue other groundwater related activities (i.e. – quarterly gauging of water levels, data evaluation), and will regularly monitor site conditions to ensure ponding is not occurring, vegetation is established, and the evapotranspiration trees continue to appear healthy.

Please find the results from the December 2016 NORM Screening results of the NORM Cell included in Appendix 2. Exposure rate from the current NORM screening is -0.9 uR/hr above background, which is less than the allowable rate of 7.5 uR/hr.

Our next groundwater monitoring event is scheduled to be conducted in December 2017. Should you have any questions, please contact me.

Sincerely,

*R Piniewski*

Robert Piniewski  
Tex Tin Steering Committee Project Coordinator

cc: Tex Tin Steering Committee

**Attachment 1**  
**2016 Groundwater Monitoring Report**

**Tex Tin Superfund Site  
Texas City, TX**

**Prepared by: Project Navigator Ltd.**

**For**

**Tex Tin Settling Defendants**



## 2016 GROUNDWATER MONITORING REPORT

### Tex Tin Superfund Site

### Texas City, Texas

DATE: SEPTEMBER 21, 2017

PROJECT: 15-0342

DOC NO.: REP-15-0342-002 Rev 0

**PREPARED FOR:**

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## **ATTACHMENTS**

Attachment 1 – Low-Flow Groundwater Sampling Logs

Attachment 2 – Calibration Logs

Attachment 3 – 2016 Groundwater Levels

Attachment 4 – Analytical Results

Attachment 5 – Well Inspection Reports

Attachment 6 – Mann Kendall Analysis

## INTRODUCTION

The Tex Tin Settling Defendants have retained ESE Partners, LLC (ESE) to perform annual groundwater sampling and report preparation at the Tex Tin Superfund Site (the Site). The 2016 groundwater sampling event was conducted on February 2017. Groundwater monitoring was conducted in accordance with the following documents and requirements:

- Site Record of Decision (ROD, May 1999);
- Amended ROD (AROD, September 28, 2000);
- Health and Safety Plan (HASP, December 2001);
- Ground Water Monitoring Plan (GWMP, Rev 1, August 2003); and
- Site Operations and Maintenance Manual (November 2004).

## Scope

The groundwater monitoring scope included the following:

- Groundwater sampling and analysis for antimony, arsenic, barium, beryllium, cadmium, chromium, copper, mercury, nickel, and selenium by Method 6020, select Volatile Organic Compounds (VOCs) by Method 8260B, Gross Alpha Particles (GAP) by liquid scintillation, Radium 226 by Method 7500, and Radium 228 by Method 904/9320 combined;
- Compliance monitoring at four (4) well nests along the southern portion of the Site;
- Detection monitoring at two (2) wells down-gradient of a Naturally-Occurring Radioactive Materials (NORM) disposal cell;
- Performance monitoring at the three (3) Shallow Transmissive Zone (STZ) wells west of the Western Barrier Wall (WBW).

## Field Methodology Summary

On February 7-9, 2017, ESE collected representative groundwater samples from seventeen (17) wells at a low-flow rate using a peristaltic pump. A monitoring well location map is shown as **Figure 1**. All samples were collected following guidance contained in EPA publication EPA/540/S-95/504, Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures (April 1996). Groundwater was continually monitored using a Horiba U-52 water quality meter for the following parameters: pH, turbidity, specific conductivity, dissolved oxygen, temperature, and oxidation/reduction potential. The depths to water and flow rates were also continuously monitored. Once collected, groundwater samples were labeled, placed into laboratory supplied containers and preserved on ice for delivery to Energy Laboratories in Casper, Wyoming (for metals and VOC analysis) or shipped without ice to ESC Lab Sciences in Broken Arrow, Oklahoma

(for Radium 226/228 and Gross Alpha Particle analysis), while maintaining proper chain of custody procedures. Field activities were documented on single page Low-Flow Groundwater Sampling Logs (**Attachment 1**) dedicated specifically to each monitor well sampled.

Groundwater samples and QC samples were collected using the following procedures:

- The water quality meters were calibrated on February 6, 2017 for field use on February 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup>, 2017. Copies of the calibration logs are provided in **Attachment 2**.
- Depth to water and total depth were measured in all wells prior to any well purging;
- Monitor wells were sampled using a peristaltic pump and dedicated polyethylene tubing;
- Purgling and sampling flow rates were maintained at 100 mL/min;
- Water quality indicator parameters (pH, turbidity, specific conductivity, dissolved oxygen, temperature, and oxidation/reduction potential) were measured and recorded at three (3) minute intervals. Parameters were considered stable when three (3) consecutive readings were within:
  - ± 0.1 standard unit for pH;
  - ± 0.5°C for temperature;
  - ± 10% specific conductance; and
  - ± 10% dissolved oxygen.
- Parameters stabilized at all locations prior to sampling;
- Four (4) QC samples were collected in laboratory supplied sample bottles and submitted for laboratory analysis as follows:
  - Two (2) Field Duplicate samples (FD-01 and FD-02) were submitted for laboratory analysis of Total Metals, VOCs, GAP, Radium 226, and Radium 228.
  - A Matrix Spike/Matrix Spike Duplicate sample (MS/MSD1) was submitted for laboratory analysis of GAP, Radium 226, Radium 228, Total Metals and VOCs.
  - One (1) Trip Blank sample was submitted for laboratory analysis of VOCs
- Sample bottles sent to Energy Laboratories were placed in ice filled coolers and maintained at a temperature that did not exceed 4°C.
- Sample bottles sent to ESC Lab Sciences were placed in coolers and maintained at room temperature as called for in the laboratory protocol.

## Results

Groundwater levels were measured by ESE during three (3) gauging events throughout 2016 and one (1) gauging event in 2017. These measurements as well as historical groundwater gauging

data are summarized in **Attachment 3**. Water levels measured during the sampling event are provided in **Table 3**. Potentiometric surface maps interpreted for the shallow (STZ), medium (MTZ), and deep (DTZ) transmissive zones for each quarterly monitoring event area are illustrated in **Figure 2** through **Figure 13**.

Field parameter data from the 2016 sampling event (collected February 2017) is summarized on **Table 3**. In STZ wells, field measured pH levels ranged from 2.68 to 6.95. In MTZ wells, field measured pH levels ranged from 6.39 to 7.54. In DTZ wells, field measured pH ranged from 6.60 to 7.80. (See **Table 3** and **Figure 14** through **Figure 16**).

Laboratory analytical results are summarized in **Table 4A** and **Table 4B** for both laboratories. The laboratory analytical reports, including Quality Assurance/Quality Control (QA/QC) forms and chain-of-custody forms are provided in **Attachment 4**.

Groundwater analytical results from both labs were compared to Perimeter Action Levels (PALs). (See **Table 2** for a summary of ground water COC PALs). All results were below the PALs with the following exceptions:

- MW-22S – GAP, Ra-226/228
- MW-22M – GAP
- MW-23S – GAP, Ra-226/228
- MW-23M – GAP
- MW-24M – GAP, Ra-226/228
- MW-24D – Ra-226/228
- MW-25S – GAP, Ra-226/228, Beryllium
- MW-25M – GAP, Ra-226/228
- MW-32S – GAP, Ra-226/228
- MW-61S – GAP, Arsenic
- NDC-1 – GAP, Ra-226/228
- NDC-2 – GAP, Ra-226/228

Field QC samples were collected to assess whether sample collection and handling processes affected sample quality. These QC samples included trip blanks, duplicate samples, and MS/MSD samples. The duplicate samples were given a separate sample identification name/number and were analyzed for the same parameters as the actual sample. A review of the analytical data indicated the following:

- Holding times were met for all samples;

- A sufficient number of field duplicate samples and trip blanks were collected and analyzed;
- Duplicate samples for all analysis had relative percent differences (RPDs) less than QA limits; and
- Laboratory trip blank samples were below the reporting limits for all constituents (**Table 5**).

## Well Inspection

Well inspections are required as part of the groundwater monitoring program. These inspections were conducted in conjunction with the groundwater sampling and included checking the locks, pads, bollards, caps, and protective casings at each well. Based on the results of these inspections, the pressure cap and lock will be replaced at MW-22S. MW-23S has shifted vertically approximately one foot from its original position, possibly due to vehicle traffic, and will be re-surveyed. Vegetation around MW-32S, MW-32M, and MW-8S is overgrown and will need to be cut back. Additionally, the locks on MW-8S, MW-61M, and MW-59S are rusted shut and will be replaced. MW-24S and MW-24D are incorrectly labeled. Their labels will need to be switched to reflect the correct well ID. Data is properly labeled in the 2016 Groundwater Monitoring Report and in groundwater gauging data. All repairs required from the inspections will be completed during the next quarterly gauging event, anticipated in October 2017. The well inspection reports are provided in **Attachment 5**.

## Revised Future Plans

There are currently no plans to change any future sampling methods. EPA will be notified prior to any future changes. The next round of annual groundwater sampling is scheduled for December 2017 and quarterly gauging events will continue in 2017.

## SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

**2016 GROUNDWATER MONITORING REPORT**

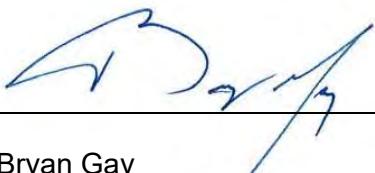
**TEX TIN SUPERFUND SITE**

**TEXAS CITY, TEXAS**

**SEPTEMBER 21, 2017**



Aaron Munsart  
Staff Environmental Geologist



Bryan Gay  
Principal Environmental Scientist

## TABLES

**Table 1**  
**Summary of Ground Water Monitoring Well Functions**  
**2016 Gauging and Sampling Events**  
**(Sampled February 2017)**

**Tex Tin Superfund Site OU-1**  
**Texas City, TX**

**Performance Monitoring Wells**

Well ID	Ground Water Level Monitoring	Ground Water Sampling
---------	-------------------------------------	-----------------------------

MW-8S	X	X
MW-8M	X	
MW-58S	X	
MW-58M	X	
MW-58D	X	
MW-32S	X	X
MW-32M	X	
MW-59S	X	
MW-59M	X	
MW-59D	X	
MW-60S	X	
MW-60M	X	
MW-60D	X	
MW-61S	X	X
MW-61M	X	

**Compliance Monitoring Wells**

Well ID	Ground Water Level Monitoring	Ground Water Sampling
MW-22S	X	X
MW-22M	X	X
MW-22D	X	X
MW-23S	X	X
MW-23M	X	X
MW-23D	X	X
MW-24S	X	X
MW-24M	X	X
MW-24D	X	X
MW-25S	X	X
MW-25M	X	X
MW-25D	X	X

**Detection Monitoring Wells**

Well ID	Ground Water Level Monitoring	Ground Water Sampling
NDC-1	X	X
NDC-2	X	X

**Table 2**  
**Summary of Ground Water Constituents of Concern**  
**February 2017 Sampling Event**

**Text Tin Superfund Site OU-1**  
**Texas City, TX**

<u>Constituent of Concern</u>	<u>Analytical Method</u>	<u>Units</u>	<u>Perimeter Action Levels</u>	
			Shallow and Medium Transmissive Zones [a]	Deep Transmissive Zone [b]
Antimony	SW6020	mg/L	7.05	0.006
Arsenic	SW6020	mg/L	0.05	0.05
Barium	SW6020	mg/L	1,230	2
Beryllium	SW6020	mg/L	0.011	0.004
Cadmium	SW6020	mg/L	8.81	0.005
Chromium	SW6020	mg/L	17,600	0.1
Copper	SW6020	mg/L	652	1.3
Mercury	SW7470A	mg/L	5.29	0.002
Nickel	SW6020	mg/L	352	0.1
Selenium	SW6020	mg/L	88.1	0.05
Benzene	SW8260B	mg/L	0.081	0.005
1,2-Dichloroethane	SW8260B	mg/L	0.102	0.005
Outreach Laboratory				
Gross alpha particle radioactivity [c]	LIQUID SCINT	pCi/L	15	15
Combined Ra-226 and Ra-228	SM 7500 RA B & EPA 904/9320	pCi/L	5	5
pH	Field Meter	pH Units		

Notes:

[a] This list of ground water Perimeter Action Levels for the Shallow and Medium Transmissive Zones are the risk-based alternate concentration limits (ACLs) for industrial land use that were included in the AROD.

[b] This list of ground water Perimeter Action Levels for the Deep Transmissive Zone is included in the AROD.

[c] Excludes radon and uranium.

**Table 3**  
**Well Construction Details and Geochemical Parameters**  
**2016 Sampling Event (Collected February 2017)**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Well ID	Elevation TOC (ft MSL)	Elevation Ground Surface (ft MSL)	Total Depth as installed (ft TOC)	Screen Interval (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	2016 (Collected Feb. 2017)				
							pH	SC (mS)	Temperature (C)	DO (mg/L)	Turbidity (NTU)
MW-22D	8.71	5.9	133.81	120-130	12.50	-3.79	7.66	1.92	24.79	0.54	0.00
MW-22M	8.08	5.9	64.68	49-59	6.59	1.49	6.90	18.78	26.38	3.14	0.00
MW-22S	8.81	5.9	32.01	21.1-26.1	6.76	2.05	5.53	76.36	26.02	0.18	0.00
MW-23D	6.503	5.6	143.85	130-140	10.62	-4.12	7.41	2.77	26.08	0.32	0.00
MW-23M	6.32	5.6	65.3	51.1-56.1	3.98	2.34	7.34	4.00	22.57	2.74	0.00
MW-23S	6.247	5.6	33.82	21.4-26.4	3.77	2.48	5.52	53.88	23.64	1.27	12.72
MW-24D	4.637	6	138.88	125-135	8.68	-4.04	7.27	1.79	25.35	2.42	3.15
MW-24M	4.562	6	61.67	50.5-55.5	2.77	1.79	6.70	14.03	21.80	0.40	0.34
MW-24S	4.699	6	35.3	16.6-26.6	3.49	1.21	6.93	1.00	23.19	0.18	0.00
MW-25D	5.884	4.4	139.17	125-135	9.80	-3.92	6.77	0.20	23.50	1.70	8.03
MW-25M	5.863	4.4	61.15	50-55	4.29	1.57	6.60	11.26	23.39	1.26	0.00
MW-25S	5.739	4.4	36.92	16-31	6.28	-0.54	5.13	58.81	24.45	1.15	0.00
MW-32M	8.20	5.9	58.5	40.2-52.2	NS	NS	NM	NM	NM	NM	NM
MW-32S	8.44	6	38.94	22.5-32.5	5.41	3.03	5.27	85.90	18.35	2.29	61.60
MW-58D	10.96	8	133.96	120-130	14.97	-4.01	NM	NM	NM	NM	NM
MW-58M	10.90	8	54.4	41-51	7.24	3.66	NM	NM	NM	NM	NM
MW-58S	10.99	8	28.49	15-25	6.03	4.96	NM	NM	NM	NM	NM
MW-59D	11.349	8.3	138.87	125-135	15.36	-4.01	NM	NM	NM	NM	NM
MW-59M	11.21	8.3	57.16	44-54	7.35	3.86	NM	NM	NM	NM	NM
MW-59S	10.972	8.3	29.17	16-26	4.12	6.85	NM	NM	NM	NM	NM
MW-60D	13.92	11	138.92	125-135	18.18	-4.26	NM	NM	NM	NM	NM
MW-60M	13.89	11	62.89	47.5-57.5	10.41	3.48	NM	NM	NM	NM	NM
MW-61M	13.02	10	57.52	44-54	NS	NS	NM	NM	NM	NM	NM
MW-61S	12.89	10.3	30.09	17-27	7.26	5.63	3.82	2.55	27.01	1.03	0.00
MW-8M	9.81	7	57.71	37.4-52.4	6.83	2.98	NM	NM	NM	NM	NM
MW-8S	9.78	7	31.78	16.5-26.5	6.74	3.04	6.61	2.01	27.22	3.54	0.00
NDC-1	14.08	11.2	30.88	17.5-27.5	6.90	7.18	2.86	100	23.92	0.20	46.24
NDC-2	14.77	11.7	33.07	19.5-29.5	7.98	6.79	3.22	93.35	18.94	0.23	11.40

Notes:

NM-Not Monitored

NS- Not Sampled due to damaged well casing

TOC- Feet from Top of Casing

MSL- Feet above mean sea level

SC- Specific Conductance

mS- Microsiemens

DO- Dissolved Oxygen

\*All values for the above geochemical parameters (Depth to Water, pH, Specific Conductivity, Temperature, Dissolved Oxygen, Turbidity) were calculated by averaging low flow sampling results from data in Attachment 1.

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloro-ethane (mg/L)	Benzene (mg/L)
<b>PERFORMANCE MONITORING WELLS</b>												
<b>MW-8S</b>												
1-Dec-03	0.0105 J	0.00923 J	0.0254	ND (0.0015)	ND (0.00075)	0.00436 J	0.00309 J	0.0000440 J	0.00557 J	ND (0.0085)	ND (0.00038)	ND (0.00070)
20-Dec-04	0.00173 J	0.00555	0.0204	ND (0.0003)	0.000353 J	0.000747 J	0.00102 J	ND (0.000042)	0.00162 J	ND (0.0017)	ND (0.00038)	ND (0.00066)
20-Dec-05	ND (0.00500)	0.00228 J	0.0205	ND (0.00200)	ND (0.00200)	ND (0.00500)	0.000687 J	ND (0.000200)	0.00277 J	ND (0.00500)	ND (0.0050)	ND (0.0050)
13-Dec-06	ND (0.00004)	0.001	0.023	ND (0.00008)	ND (0.0002)	ND (0.0001)	ND (0.00004)	ND (0.00005)	ND (0.00006)	0.002	ND (0.0005)	ND (0.0005)
6-Dec-07	ND (.005)	ND (0.002) D	ND (0.003)	ND (0.00008)	ND (0.009)	ND (0.006)	ND (0.003)	ND (0.00006)	ND (0.005)	ND (0.009) D	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.003	ND (0.1)	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	0.001	0.003	ND (0.10)	ND (0.02)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
7-Dec-10	ND(0.001)	0.002	ND (0.10)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.007) D	ND (0.001)	ND (0.001)
23-Jan-12	ND(0.006)	0.002	ND (0.10)	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.003	ND (0.001)	ND (0.001)
29-Jan-13	ND (0.001)	0.001	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.002) D	ND (0.001)	ND (0.001)
18-Dec-13	ND (0.001)	0.001	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
09-Dec-14	ND (0.001)	0.002	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
19-Jan-16	ND (0.001)	0.002	ND (0.05)	ND (0.001408)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
08-Feb-17	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.005)	0.007	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
<b>MW-32S</b>												
3-Dec-03	ND (0.010)	ND (0.018)	4.08	ND (0.0030)	1.24	ND (0.00500)	57.7	0.0000850 J	0.76	ND (0.017)	ND (0.00038)	ND (0.00070)
17-Dec-04	0.0157 J	<b>0.268</b>	3.66	ND (0.0015)	1.35	0.00264 J	48.4	0.0000880 J	0.439	0.0903	ND (0.00038)	ND (0.00066)
20-Dec-05	ND (0.100)	<b>0.103</b>	4.07	0.00747 J	1.59	ND (0.100)	46.5	0.0000870 J	0.809	ND (0.100)	ND (0.0050)	ND (0.0050)
13-Dec-06	ND (0.001)	0.01D	3.96 D	ND (0.002)	1.46 D	ND (0.003)	48	ND (0.00005)	0.69	0.028 D	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.005)	ND (0.002)	3.70	ND (0.0008)	1.14	ND (0.006)	45.6	ND (0.0006)	0.45	0.088	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.043	3.6	ND (0.01)	1.20	ND (0.05)	45.4	ND (0.0001)	0.52	0.002	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.003)	0.046	3.8	ND (0.003)	1.26	ND (0.05)	46.6	ND (0.0006)	0.49	0.005	ND (0.001)	ND (0.001)
7-Dec-10	0.001	0.01 D	3.4	0	1.41	ND (0.05)	111	ND (0.0001)	0.4	0.024 D	ND (0.002)	ND (0.002)
23-Jan-12	ND(0.006)	0.02	3.3	ND (0.004)	0.988	ND (0.05)	44.5	ND (0.0001)	0.47	0.007 D	ND (0.001)	ND (0.001)
31-Jan-13	0.001	0.034 D	3.29	ND (0.001)	1.15 D	0.03 D	46.4 D	0.0001	0.39 D	0.06 D	ND (0.001)	ND (0.001)
18-Dec-13	0.002	0.002 J	3.15	0.001	1.01	ND (0.005)	31.6	ND (0.001) D	0.473	0.013 D	0.00018 J	0.00051 J
10-Dec-14	0.001	0.009	2.88	ND (0.001)	0.894	ND (0.005)	16.5	ND (0.001) D	0.287	ND (0.002) D	ND (0.001)	0.00059 J
19-Jan-16	ND (0.001)	0.032	2.80	ND (0.01408) D	1.0 D	ND (0.005)	15.7 D	ND (0.0006) D	0.361	0.001	ND (0.001)	ND (0.001)
09-Feb-17	ND (0.006) D	ND (0.006) D	2.66	ND (0.001)	0.556 D	ND (0.007) D	9.41	ND (0.0002) D	0.459	0.10 D	ND (0.001)	ND (0.001)
<b>MW-61S</b>												
2-Dec-03	ND (0.20)	<b>ND (0.090)</b>	4.06	<b>0.34</b>	1.93	0.594	35.9	0.086	4.98	0.100 J	ND (0.00038)	ND (0.00070)
20-Dec-04	0.0194 J	<b>0.178</b>	6.81	<b>0.328</b>	2.25	0.623	33.5	0.0892	5.4	0.198	ND (0.00038)	ND (0.00066)
20-Dec-05	ND (0.0500)	0.0428 J	3.51	<b>0.17</b>	0.717	0.28	9.07	0.0198	2.63	0.0403 J	ND (0.0050)	ND (0.0050)
13-Dec-06	0.002	0.011 D	5.96 D	<b>0.24</b>	2.66 D	0.24	53.5	0.065	5 D	0.05 D	ND (0.001)	ND (0.001)
5-Dec-07	ND (0.005)	ND (0.002)	3.4	<b>0.13</b>	1.05	0.11	16.8	0.005	2.55	0.03	ND (0.001)	ND (0.005)
2-Dec-08	ND (0.05)	0.038	3.3	<b>0.09</b>	1.58	0.08	40.6	0.062	2.78	0.01	ND (0.001)	ND (0.001)
11-Jan-10	0.004	0.047	0.7	<b>0.045</b>	0.165	ND (0.05)	2.01	0.0005	0.64	0.002	ND (0.001)	ND (0.001)
7-Dec-10	0.002 D	0.023	1	<b>0.047</b>	0.219	ND (0.05)	3.16	0.0006	0.85	0.009 D	ND (0.001)	ND (0.001)

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloro-ethane (mg/L)	Benzene (mg/L)
23-Jan-12	ND(0.006)	0.024	0.9	<b>0.047</b>	0.19	ND (0.05)	2.35	0.0005	0.87	ND (0.001)	ND (0.001)	ND (0.001)
29-Jan-13	0.003	0.023	1.16	<b>0.017 D</b>	0.498 D	0.01	21.6 D	0.0028	0.55 D	ND (0.001)	ND (0.001)	ND (0.001)
18-Dec-13	0.004	0.012 D	1.26	<b>0.024</b>	0.472	0.01	16.9	0.0008	1.07	ND (0.006) D	ND (0.001)	0.00035 J
10-Dec-14	0.002	0.01	0.67	<b>0.024</b>	0.244	0.009	6.53	0.0006	0.513	NS (0.001)	ND (0.001)	0.00031 J
19-Jan-16	ND (0.001)	0.069	0.18	<b>0.013 D</b>	0.043	0.008	0.96 D	0.0003	0.25 D	ND (0.001)	ND (0.001)	ND (0.001)
8-Feb-17	0.001	<b>0.083</b>	0.28	0.008	0.115	ND (0.005)	4.41	0.0006	0.245	ND (0.003) D	ND (0.001)	ND (0.001)
<b>COMPLIANCE MONITORING WELLS</b>												
<b>MW-22S</b>												
3-Dec-03	ND (0.0050)	0.0208 J	0.493	ND (0.0015)	0.376	0.00390 J	0.0514	ND (0.000042)	0.248	0.0285	ND (0.00038)	ND (0.00070)
16-Dec-04	ND (0.0050)	<b>0.341</b>	0.71	ND (0.0015)	1.02	ND (0.0025)	0.0169	ND (0.000042)	0.0614	ND (0.0085)	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.100)	<b>0.0964 J</b>	0.767	ND (0.0400)	1.27	ND (0.100)	0.0157 J	ND (0.000200)	0.292	ND (0.100)	ND (0.0050)	ND (0.0050)
2-Mar-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12-Dec-06	ND (0.0002)	ND (0.0001)	0.942	ND (0.00008)	1.1	0.01	0.05	ND (0.00005)	0.09	ND (0.0004)	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.0050)	0.023	0.8	ND (0.00008)	0.85	ND (0.006)	0.04	ND (0.00006)	ND (0.02)	ND (0.0004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	<b>0.158</b>	0.9	ND (0.01)	1.05	ND (0.05)	ND (0.01)	ND (0.001)	0.15	0.004	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.02)	ND(0.01)	0.9	ND (0.001)	1.42	ND (0.05)	0.03	ND (0.0001)	0.25	ND (0.001)	ND (0.001)	ND (0.001)
7-Dec-10	ND (0.05)	0.007 D	0.7	ND (0.01)	0.950	ND (0.05)	0.33	ND (0.0001)	ND (0.05)	0.032 D	ND (0.002)	ND (0.002)
26-Jan-12	ND(0.006)	0.004	1.3	ND (0.004)	1.35	ND (0.05)	ND (0.01)	ND (0.0001)	0.09	0.004	ND (0.001)	0.003J
29-Jan-13	0.002	0.002 D	1.29 D	ND (0.001)	1.65 D	0.006	0.034	ND (0.0001)	0.27	0.04 D	ND (0.001)	ND (0.001)
16-Dec-13	0.004	ND (0.002) D	1.46	ND (0.001)	1.48	0.006	0.045	ND (0.001) D	0.168	0.013 D	ND (0.001)	0.00027 J
9-Dec-14	0.001	0.013	1.44	ND (0.001)	1.12	ND (0.005)	0.019	ND (0.001) D	0.085	ND (0.002) D	ND (0.001)	0.00033 J
20-Jan-16	ND (0.001)	0.042	1.14	ND (0.01408) D	1.0 D	ND (0.005)	0.265	ND (0.0006) D	0.130	0.003	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.004) D	ND (0.006) D	1.18	ND (0.003) D	0.774	ND (0.007) D	0.019	ND (0.0002) D	0.072 D	ND (0.02) D	ND (0.001)	ND (0.001)
<b>MW-22M</b>												
3-Dec-03	ND (0.0050)	ND (0.0090)	0.125	ND (0.0015)	ND (0.00075)	0.00292 J	0.00641 J	ND (0.000042)	0.0223 J	0.00910 J	ND (0.00038)	ND (0.00070)
16-Dec-04	ND (0.001)	<b>0.199</b>	0.134	ND (0.0003)	0.000235 J	0.00164 J	0.0244	ND (0.000042)	0.00539	0.00321 J	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.0075	0.112	ND (0.00200)	0.000603 J	0.00103 J	0.00505	ND (0.000200)	0.0176	0.00322 J	ND (0.0050)	ND (0.0050)
12-Dec-06	ND (0.00004)	0.006	0.074	ND (0.00008)	0.001	ND (0.0001)	ND (0.00004)	ND (0.00005)	ND (0.00006)	0.018	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (.005)	0.008	ND (0.0002)	ND (0.00008)	ND (0.0004)	ND (0.006)	ND (0.0001)	ND (0.00006)	ND (0.005)	0.004	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.014	0.1	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.001	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.009	ND (0.10)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
7-Dec-10	ND (0.05)	0.006	0.1	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
26-Jan-12	ND(0.006)	0.002D	ND (0.10)	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloroethane (mg/L)	Benzene (mg/L)
29-Jan-13	ND (0.001)	0.008	0.13	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.007) D	ND (0.001)	ND (0.001)
16-Dec-13	ND (0.001)	0.003	0.11	ND (0.001)	0.004	ND (0.001)	0.005	ND (0.0001)	0.008	ND (0.01) D	ND (0.001)	ND (0.001)
09-Dec-14	ND (0.001)	0.003	0.14	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.01) D	ND (0.001)	ND (0.001)
20-Jan-16	ND (0.001)	0.006	0.14	ND (0.002816) D	0.012	ND (0.005)	ND (0.005)	ND (0.0001)	0.011	0.001	ND (0.001)	ND (0.001)
08-Feb-17	ND (0.001)	0.002	0.15	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.003) D	ND (0.001)	ND (0.001)
<b>MW-22D</b>												
3-Dec-03	ND (0.0020)	0.00873 J	0.505	ND (0.00060)	ND (0.00030)	0.00128 J	ND (0.00060)	ND (0.000042)	0.00284 J	ND (0.0034)	ND (0.00038)	ND (0.00070)
16-Dec-04	0.00114 J	0.0139	0.438	ND (0.0003)	0.000264 J	0.000926 J	0.00199 J	ND (0.000042)	0.00103 J	ND (0.0017)	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.00934	0.298	0.000655 J	ND (0.00200)	ND (0.00500)	0.000627 J	ND (0.000200)	0.00140 J	ND (0.00500)	ND (0.0050)	ND (0.0050)
12-Dec-06	ND (0.00004)	0.014	0.172	ND (0.00008)	ND (0.0002)	ND (0.0001)	ND (0.00004)	ND (0.00005)	ND (0.00006)	ND (0.0004)	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.05)	ND (0.002)	0.2	ND (0.00008)	ND (0.0004)	ND (0.004)	0.09	ND (0.00006)	ND (0.005)	0.01	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.008	0.3	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.006	0.3	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
7-Dec-10	ND (0.001)	0.006	0.3	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
26-Jan-12	ND (0.006)	0.004D	0.3	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.003	ND (0.001)	ND (0.001)
30-Jan-13	ND (0.001)	0.004	0.29	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.002) D	ND (0.001)	ND (0.001)
16-Dec-13	ND (0.001)	0.003	0.29	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
09-Dec-14	ND (0.001)	0.004	0.29	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
20-Jan-16	ND (0.001)	0.004	0.26	ND (0.002816) D	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001831) D	ND (0.001)	ND (0.001)
08-Feb-17	ND (0.001)	0.002	0.3	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
<b>MW-23S</b>												
2-Dec-03	ND (0.010)	ND (0.018)	2.12	ND (0.0030)	0.854	ND (0.0050)	10.2	ND (0.000042)	0.352	0.0758	ND (0.00038)	0.057
16-Dec-04	ND (0.005)	0.198	2.38	ND (0.0015)	1.11	0.00338 J	12.4	ND (0.000042)	0.139	0.0710	ND (0.00038)	0.19
21-Dec-05	ND (0.100)	0.0573 J	1.83	0.00738 J	0.595	ND (0.100)	5.07	ND (0.000200)	0.246	0.0365 J	ND (0.0050)	0.23
2-Mar-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12-Dec-06	ND (0.0002)	0.005 D	1.76	ND (0.00008)	0.339 D	ND (0.0001)	1.18	ND (0.00005)	0.13	0.011 D	ND (0.001)	0.16d
5-Dec-07	ND (0.005)	0.007	1.8	ND (0.00008)	0.04	ND (0.006)	0.24	ND (0.00006)	ND (0.02)	ND (0.0004)	ND (0.0005)	0.18
2-Dec-08	ND (0.05)	0.011	1.7	ND (0.01)	0.08	ND (0.05)	0.85	ND (0.00001)	0.1	0.002	ND (0.002)	0.13
11-Jan-10	ND (0.002)	0.005	1.5	ND (0.002)	0.167	ND (0.05)	2.48	ND (0.0001)	0.14	ND (0.002)	ND (0.001)	0.12
6-Dec-10	ND (0.002) D	ND (0.001)	1.5	ND (0.001)	0.032	ND (0.05)	0.4	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	0.11
26-Jan-12	ND (0.006)	0.003 D	1.5	ND (0.004)	0.245	ND (0.05)	6.2	ND (0.0001)	ND (0.05)	0.004	ND (0.001)	0.089
30-Jan-13	ND (0.001)	0.008	1.4	ND (0.001)	0.293	ND (0.005)	4.22 D	ND (0.0001)	0.035	ND (0.002) D	ND (0.001)	0.048
17-Dec-13	ND (0.001)	0.003 D	1.61	ND (0.001)	0.236	ND (0.005)	0.73	ND (0.0001)	0.169	ND (0.01) D	ND (0.001)	0.071
10-Dec-14	ND (0.001)	0.005	1.5	ND (0.001)	0.466	ND (0.005)	2.26	ND (0.0001)	0.031	ND (0.001)	ND (0.001)	0.069
20-Jan-16	ND (0.00118)	0.011	1.45	ND (0.005632) D	0.58 D	ND (0.005)	3.25 D	ND (0.0006) D	0.071	ND (0.003662) D	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.001)	ND (0.003) D	1.4	ND (0.001)	0.692	ND (0.005)	2.59	ND (0.0001)	0.035	ND (0.008) D	ND (0.001)	0.058

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloroethane (mg/L)	Benzene (mg/L)
<b>MW-23M</b>												
2-Dec-03	ND (0.0020)	0.00413 J	0.187	ND (0.00060)	ND (0.00030)	0.00258 J	0.00494	ND (0.000042)	0.0157	0.00869 J	ND (0.00038)	ND (0.00070)
17-Dec-04	ND (0.001)	0.0122	0.206	ND (0.0003)	0.000242 J	0.000986 J	0.00203	ND (0.000042)	0.00323 J	0.00246 J	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.00475 J	0.185	ND (0.00200)	0.000464 J	0.00125 J	0.00391 J	ND (0.000200)	0.0126	0.00210 J	ND (0.0050)	ND (0.0050)
12-Dec-06	ND (0.00004)	0.005	0.206	ND (0.00008)	ND (0.0002)	ND (0.0001)	ND (0.00004)	ND (0.00005)	ND (0.00006)	0.014	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.005)	0.002	0.2	ND (0.00008)	ND (0.0005)	ND (0.006)	ND (0.0001)	ND (0.00006)	ND (0.005)	ND (0.0004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.008	0.2	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.003	0.2	ND (0.02)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.05)	0.003 B	0.2	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
26-Jan-12	ND(0.006)	0.002D	0.2	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
30-Jan-13	ND (0.001)	0.007	0.21	ND (0.001)	ND (0.001)	ND (0.005)	0.014	ND (0.0001)	ND (0.005)	0.005 D	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	0.0003	0.18	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	0.011	ND (0.01) D	ND (0.001)	ND (0.001)
10-Dec-14	ND (0.001)	0.002	0.19	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.01)	ND (0.001)	ND (0.001)
20-Jan-16	ND (0.001)	0.005	0.20	ND (0.002816) D	0.003	0.006	0.015	ND (0.0001)	0.005	0.020 D	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.001)	0.002	0.17	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.005)	ND (0.002) D	ND (0.001)	ND (0.001)
<b>MW-23D</b>												
2-Dec-03	ND (0.0020)	0.00963 J	0.158	ND (0.00060)	ND (0.00030)	0.0106	0.00324 J	ND (0.000042)	0.00409 J	ND (0.0034)	ND (0.00038)	ND (0.00070)
17-Dec-04	ND (0.001)	0.0130	0.183	ND (0.0003)	0.000210 J	0.0123	0.00171 J	ND (0.000042)	0.00473 J	ND (0.0017)	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.001)	0.0128	0.12	ND (0.00200)	ND (0.00200)	0.00320 J	0.00140 J	ND (0.000200)	0.00432 J	ND (0.00500)	ND (0.0050)	ND (0.0050)
11-Dec-06	ND (0.001)	0.015	0.121	ND (0.0004)	ND (0.0008)	0.03	ND (0.0002)	ND (0.00005)	ND (0.0003)	0.003 D	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.001)	0.012	ND (0.0002)	ND (0.00008)	ND (0.0005)	ND (0.006)	ND (0.0001)	ND (0.00006)	ND (0.005)	ND (0.0004)	ND (0.001)	ND (0.001)
2-Dec-08	ND (0.001)	0.014	0.2	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.01	ND (0.10)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.001)	0.008 B	ND (0.10)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
26-Jan-12	ND (0.001)	0.009D	0.3	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.001	ND (0.001)	ND (0.001)
30-Jan-13	ND (0.001)	0.007	0.36	ND (0.001)	ND (0.001)	0.01	ND (0.005)	ND (0.0001)	ND (0.005)	0.003 D	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	0.005	0.34	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	0.00043 J
10-Dec-14	ND (0.001)	0.028	1.67	ND (0.001)	ND (0.001)	0.006	ND (0.005)	ND (0.0001)	0.006	ND (0.001) D	ND (0.001)	0.00019 J
20-Jan-16	ND (0.001)	0.004	0.30	ND (0.002816) D	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001831) D	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.001)	0.003	0.27	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
<b>MW-24S</b>												
2-Dec-03	0.00563 J	ND (0.0090)	0.164	ND (0.0015)	0.677	ND (0.0025)	4.12	0.00594	0.0392	ND (0.0085)	ND (0.00038)	ND (0.00070)
16-Dec-04	ND (0.001)	0.00774	0.048	ND (0.0003)	0.00646	0.00163 J	0.0824	0.000131 J	0.00403 J	ND (0.0017)	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.00358 J	0.0874	ND (0.00200)	0.00921	ND (0.00500)	0.672	0.000555	0.0112	0.00182	ND (0.0050)	0.0014 J
11-Dec-06	ND (0.0002)	0.002	0.409	ND (0.0004)	0.16	ND (0.0006)	7.7	0.005	0.06	0.004 D	0.0031*	0.013
4-Dec-07	ND (0.0002)	ND (0.00009)	ND (0.0002)	ND (0.00007)	ND (0.0005)	ND (0.0002)	0.03	ND (0.00006)	ND (0.0002)	ND (0.0004)	ND (0.0005)	0.0013
2-Dec-08	ND (0.05)	0.015	0.4	ND (0.01)	0.15	ND (0.05)	5.75	0.006	ND (0.05)	ND (0.001)	0.003	0.016
11-Jan-10	ND(0.001)	ND(0.001)	ND(0.10)	ND(0.001)	0.00	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.001)	0.001	ND (0.10)	ND (0.001)	0.00	ND (0.05)	0.02	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
24-Jan-12	ND(0.006)	0.003	0.3	ND (0.004)	ND (0.005)	ND (0.05)	0.02	ND (0.0001)	ND (0.05)	0.005	ND (0.001)	ND (0.001)
30-Jan-13	ND (0.001)	0.002	0.08	ND (0.001)	0.002	ND (0.005)	0.05	0.0004	ND (0.005)	0.004 D	ND (0.001)	0.004

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloroethane (mg/L)	Benzene (mg/L)
17-Dec-13	ND (0.001)	ND (0.001)	0.05	ND (0.001)	0.001	ND (0.005)	0.009	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	0.00026 J
10-Dec-14	ND (0.001)	ND (0.001)	0.06	ND (0.001)	ND (0.001)	ND (0.005)	0.009	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
20-Jan-16*	ND (0.001)	ND (0.001)	0.06	ND (0.001408)	ND (0.001)	ND (0.005)	0.010	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
7-Feb-17	ND (0.001)	ND (0.001)	0.08	ND (0.001)	0.02	ND (0.005)	0.516	0.0006	ND (0.005)	ND (0.001)	ND (0.001)	0.014
<b>MW-24M</b>												
2-Dec-03	0.00742 J	0.0105 J	0.447	ND (0.0015)	0.000912 J	0.013	0.00624 J	ND (0.000042)	0.0162 J	ND (0.0085)	ND (0.00038)	ND (0.00070)
16-Dec-04	ND (0.001)	0.0142	0.582	ND (0.0003)	0.00314	0.00166 J	0.00125 J	ND (0.000042)	0.00460 J	0.00231 J	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.0108	0.694	0.000491 J	ND (0.00200)	ND (0.00500)	0.00194 J	ND (0.000200)	0.0186	0.00298 J	ND (0.0050)	ND (0.0050)
12-Dec-06	ND (0.00004)	0.004	0.569	ND (0.00008)	ND (0.0002)	ND (0.0001)	ND (0.00004)	ND (0.00005)	ND (0.00006)	0.01	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.005)	0.002	0.6	ND (0.00008)	ND (0.0004)	ND (0.004)	ND (0.0001)	ND (0.00006)	ND (0.005)	ND (0.0004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.009	0.7	ND (0.01)	ND (0.01)	ND (0.05)	0.01	ND (0.001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.002	0.8	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.002)	0.004 B	0.7	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
24-Jan-12	ND (0.006)	0.006	0.7	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.002	ND (0.001)	ND (0.001)
30-Jan-13	ND (0.001)	0.006	0.61	ND (0.001)	ND (0.001)	ND (0.005)	0.044	ND (0.0001)	ND (0.005)	0.004 D	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	0.002	0.47	ND (0.001)	ND (0.001)	ND (0.005)	0.005	ND (0.0001)	ND (0.005)	ND (0.006) D	ND (0.001)	ND (0.001)
10-Dec-14	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
20-Jan-16	ND (0.001)	0.008	0.71	ND (0.001408)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	0.005	0.003	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.001)	ND (0.003) D	0.66	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.003) D	ND (0.001)	ND (0.001)
<b>MW-24D</b>												
2-Dec-03	ND (0.0020)	0.00755 J	0.527	ND (0.00060)	ND (0.00030)	0.00125 J	0.00111 J	ND (0.000042)	0.00176 J	ND (0.0034)	ND (0.00038)	ND (0.00070)
16-Dec-04	ND (0.001)	0.00614	0.306	ND (0.0003)	ND (0.00015)	ND (0.0005)	ND (0.0003)	ND (0.000042)	0.00102 J	ND (0.0017)	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.00362 J	0.256	ND (0.00200)	ND (0.00200)	0.000605 J	0.000570 J	ND (0.000200)	0.00119 J	0.00178 J	ND (0.0050)	ND (0.0050)
11-Dec-06	ND (0.00004)	0.004	0.233	ND (0.00008)	ND (0.0002)	ND (0.0001)	ND (0.00004)	ND (0.00005)	ND (0.00006)	0.003	ND (0.0005)	ND (0.0005)
5-Dec-07	ND (0.005)	0.001	0.2	ND (0.00008)	ND (0.0004)	ND (0.006)	ND (0.0001)	ND (0.00006)	ND (0.005)	ND (0.0004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.005	0.2	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	ND (0.001)	0.2	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.001)	0.002 B	0.2	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
24-Jan-12	ND (0.006)	0.002	0.2	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.002	ND (0.001)	ND (0.001)
30-Jan-13	ND (0.001)	0.002	0.19	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	0.002 D	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	ND (0.001)	0.19	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
10-Dec-14	ND (0.001)	ND (0.001)	0.19	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
20-Jan-16*	ND (0.001)	0.002	0.19	ND (0.002816) D	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001831) D	ND (0.001)	ND (0.001)
7-Feb-17	ND (0.001)	ND (0.001)	0.17	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
<b>MW-25S</b>												
2-Dec-03	ND (0.0050)	ND (0.0090)	0.407	0.00385 J	0.128	0.00476 J	0.692	0.0000850 J	0.219	0.0492	ND (0.00038)	ND (0.00070)
16-Dec-04	ND (0.001)	0.0216	0.308	0.00223	0.104	0.00466	0.401	0.0000450 J	0.136	0.00184 J	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.0500)	ND (0.0500)	0.562	0.00986 J	0.234	0.00679 J	1.05	0.000114 J	0.232	ND (0.0500)	ND (0.0050)	ND (0.0050)
11-Dec-06	ND (0.00004)	0.007	0.919	0.01*	0.406	0.02	1.47	ND (0.00005)	0.3	0.01	ND (0.0005)	ND (0.0005)
4-Dec-07	ND (0.005)	0.008	0.8	ND (0.0008)	0.43	ND (0.006)	0.74	ND (0.0006)	0.22	ND (0.004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.012	1	ND (0.01)	0.49	ND (0.05)	1.01	ND (0.0001)	0.33	0.001	ND (0.001)	ND (0.001)

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloro-ethane (mg/L)	Benzene (mg/L)
11-Jan-10	ND (0.003)	0.024	3.6	<b>0.032</b>	1.95	ND (0.05)	2.65	ND (0.0001)	0.74	ND(0.005)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.002)	0.004 B	1	0.008	0.515	ND (0.05)	1.03	ND (0.0001)	0.33	ND(0.005)	ND (0.001)	ND (0.001)
24-Jan-12	ND (0.002)	0.021	3.9	<b>0.021</b>	1.5	ND (0.05)	1.43	0.0001	0.74	ND(0.003)	ND (0.001)	ND (0.001)
31-Jan-13	ND (0.001)	0.009	2.46	<b>0.023 D</b>	1.5 D	0.04 D	1.88 D	0.0002	0.53 D	ND (0.005)	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	ND (0.001)	0.25	0.003	0.161	ND (0.005)	0.419	ND (0.0001)	0.211	ND (0.001)	ND (0.001)	0.00028 J
10-Dec-14	ND (0.001)	0.012	1.64	<b>0.016</b>	1.04	0.016	0.984	ND (0.0002) D	0.377	ND (0.002) D	ND (0.001)	0.0009 J
20-Jan-16	ND (0.001)	0.025	2.05	<b>0.02 D</b>	1.6 D	0.018	0.8 D	ND (0.0006) D	0.5 D	ND (0.001831) D	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.002) D	ND (0.02) D	1.83	<b>0.011</b>	1.38	0.014 D	0.6 D	ND (0.0002) D	0.484 D	ND (0.02) D	ND (0.001)	ND (0.001)
<b>MW-25M</b>												
2-Dec-03	ND (0.0020)	0.00668 J	0.28	ND (0.00060)	ND (0.00030)	0.00962	0.00376 J	ND (0.000042)	0.013	0.0144	ND (0.00038)	ND (0.00070)
17-Dec-04	0.00179 J	0.0115	0.355	ND (0.0003)	0.000262 J	0.00193 J	0.00193 J	ND (0.000042)	0.00269 J	0.00194 J	ND (0.00038)	ND (0.00066)
21-Dec-05	0.00109 J	0.00507	0.343 J	0.000515	ND (0.00200)	ND (0.00500)	0.00182 J	ND (0.000200)	0.0131	ND (0.00500)	ND (0.0050)	ND (0.0050)
11-Dec-06	ND (0.0004)	0.003	0.327	ND (0.0008)	ND (0.0002)	ND (0.0001)	ND (0.00004)	ND (0.0005)	ND (0.00006)	0.002	ND (0.0005)	ND (0.0005)
4-Dec-07	ND (0.0002)	ND (0.00009)	0.3	ND (0.0007)	ND (0.0004)	ND (0.0003)	ND (0.0001)	ND (0.0006)	ND (0.0002)	ND (0.0004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.007	0.3	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.001	0.3	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.001)	0.003 B	0.3	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
24-Jan-12	ND(0.006)	0.003	0.4	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
31-Jan-13	ND (0.001)	0.004	0.36	ND (0.001)	ND (0.001)	ND (0.05)	0.025	ND (0.0001)	ND (0.005)	0.005 D	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	0.002	0.36	ND (0.001)	ND (0.001)	ND (0.05)	0.006	ND (0.0001)	0.01	0.007 D	ND (0.001)	ND (0.001)
10-Dec-14	ND (0.001)	ND (0.001)	0.37	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
20-Jan-16	ND (0.001)	0.002	0.35	ND (0.001408)	ND (0.001)	ND (0.05)	ND (0.005)	ND (0.00015) D	ND (0.005)	0.004	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.001)	ND (0.001)	0.36	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.002) D	ND (0.001)	ND (0.001)
<b>MW-25D</b>												
2-Dec-03	ND (0.0020)	0.0174	0.687	ND (0.00060)	ND (0.00030)	0.00146 J	0.00304 J	ND (0.000042)	0.00214 J	ND (0.0034)	ND (0.00038)	ND (0.00070)
17-Dec-04	ND (0.001)	0.0152	0.386	ND (0.0003)	ND (0.00015)	ND (0.0005)	0.00147 J	ND (0.000042)	0.00110 J	ND (0.0017)	ND (0.00038)	ND (0.00066)
21-Dec-05	ND (0.00500)	0.0145	0.434	0.000543 J	ND (0.00200)	ND (0.00500)	0.00125 J	ND (0.000200)	0.00136 J	ND (0.00500)	ND (0.0050)	ND (0.0050)
11-Dec-06	ND (0.0004)	0.005	0.18	ND (0.0008)	ND (0.0002)	ND (0.0001)	0.02	ND (0.0005)	ND (0.00006)	ND (0.0004)	ND (0.0005)	ND (0.0005)
4-Dec-07	ND (0.005)	0.007	0.3	ND (0.0008)	ND (0.0004)	ND (0.005)	ND (0.0002)	ND (0.0006)	ND (0.005)	ND (0.0004)	ND (0.0005)	ND (0.0005)
2-Dec-08	ND (0.05)	0.009	0.3	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
11-Jan-10	ND (0.001)	0.008	0.3	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
6-Dec-10	ND (0.001)	0.008 B	0.3	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)
24-Jan-12	ND(0.006)	0.004	ND (0.1)	ND (0.004)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0001)	ND (0.05)	0.003	ND (0.001)	ND (0.001)
31-Jan-13	ND (0.001)	0.004	ND (0.05)	ND (0.001)	ND (0.001)	0.01	0.008	ND (0.0001)	ND (0.005)	0.005 D	ND (0.001)	ND (0.001)
17-Dec-13	ND (0.001)	0.003	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
10-Dec-14	ND (0.001)	0.003	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.005)	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
20-Jan-16	ND (0.001)	0.002	ND (0.05)	ND (0.001408)	ND (0.001)	ND (0.05)	0.006	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
8-Feb-17	ND (0.001)	0.002	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.05)	0.008	ND (0.0001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)

**Table 4A**  
**Ground Water Analytical Results-Metals, VOCs**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Selenium (mg/L)	1,2 Dichloro-ethane (mg/L)	Benzene (mg/L)
<b>PERIMETER ACTION LIMITS</b>												
Shallow and Medium Transmissive Zone <sup>a</sup>	7.05	0.05	1,230	0.011	8.81	17,600	652	5.29	352	88.1	0.102	0.081
Deep Trans - missive Zone <sup>b</sup>	0.006	0.05	2	0.004	0.005	0.1	1.3	0.002	0.1	0.05	0.005	0.005

**NOTES**

- <sup>a</sup> The ground water Perimeter Action Levels for the Shallow and Medium Transmissive Zones were included in the AROD. J Estimated value
  - <sup>b</sup> The ground water Perimeter Action Levels for the Deep Transmissive Zone were included in the AROD. D Reporting limit increased due to sample
  - c Excludes radon and uranium NA Not analyzed
  - d Samples re-analyzed on March 2, 2006 by methods ARS-0020/EPA904 and ARS-010/EPA903 due to quality concerns with previous analytical methods, where EPA901.2 and RA-226 was inferred from BI-124. -- Presumed not analyzed
  - e Samples re-analyzed on March 2, 2006 using previous sampling method EPA900 ND Not Determined
  - f Analysis performed past recommended holding time. J Estimated value. The analyte was
  - NS Not sampled due to well damage
- \* MW-24S and MW-24D were incorrectly labeled for the 1/20/2016 sampling event and as such MW-24S is labeled as MW-24D in the laboratory report and vice versa

Yellow boxed result indicates value exceeds Perimeter Action Level

Blue boxed result indicates Min Detection Limit exceeds Perimeter Action Level

**Table 4B**  
**Ground Water Analytical Results-Radiochemical**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Gross Alpha Particle (pCi/L) (Mthd E900.0) <sup>c</sup>		Gross Alpha Particle (pCi/L) (LIQUID SCINT) <sup>c</sup>		Ra-226/Ra-228 Combined (pCi/L) (E903.0 & RA-05)		Ra-226/Ra-228 Combined (pCi/L) (7500 Ra B M & EPA904/9320)
	Result	Error +/- 2 Sigma	Result (detection Limit)	Error +/- 2 Sigma	Result	Error +/- 2 Sigma	Result
<b>PERFORMANCE MONITORING WELLS</b>							
<b>MW-8S</b>							
1-Dec-03	ND (6.113)		NA		ND (0.990)		NA
20-Dec-04	ND (10.887)		NA		5.61	2.27	NA
20-Dec-05	ND (5.900)		NA		ND (0.830)		NA
13-Dec-06	6.4	0.8	NA		5.8	0.8	NA
6-Dec-07	NA		6 (4.9)	2.1	NA		2.13
2-Dec-08	NA		20.7 (33.0)	14.0	NA		1
11-Jan-10	NA		0 (8.5)	5.6	NA		0.299
6-Dec-10	NA		0 (5.2)	3.0	NA		1.535
23-Jan-12	NA		7.6 (10.1)	4.4	NA		0.531
29-Jan-13	NA		3.2 (5.4)	3.5	NA		0.05
18-Dec-13	NA		8.7 (6.3)	3.9	NA		-0.875
9-Dec-14	NA		13.3 (4.3)	2.9	NA		0.331
19-Jan-16	NA		12.3 (2.4)	2.4	NA		-0.565
8-Feb-17	NA		11.3 (3.8)	2.4	NA		1.644
<b>MW-32S</b>							
3-Dec-03	ND (209.602)		NA		13	9.63	NA
17-Dec-04	ND (417.668)		NA		3.8	16.61	NA
20-Dec-05	ND (518.310)		NA		11.1	10.41	NA
13-Dec-06	273	43.3	7.66		22.8	6	3.05
5-Dec-07	NA		0 (3.9)	1.7	NA		5.36
2-Dec-08	NA		11 (7.9)	3.3	NA		2.11
11-Jan-10	NA		6.9 (21.7)	14.3	NA		5.463
7-Dec-10	NA		0 (25.4)	15	NA		9.14
23-Jan-12	NA		23.8 (10.1)	4.9	NA		5.56
31-Jan-13	NA		4.8 (12.3)	8.0	NA		34.97
18-Dec-13	NA		51.4 (19.5)	12.4	NA		11.95
10-Dec-14	NA		141 (24.2)	17.2	NA		24.11
19-Jan-16	NA		87.4 (23.4)	23.4	NA		20.07
8-Feb-17	NA		78.3 (7.6)	5.8	NA		21.95
<b>MW-61S</b>							
2-Dec-03	ND (198.273)		NA		137.93	11.96	NA
20-Dec-04	ND (317.278)		NA		194.9	66.27	NA
20-Dec-05	ND (95.750)		NA		68.71	2.99	NA
13-Dec-06	182	50.3	NA		82.4	3.4	NA
5-Dec-07	NA		22.5 (10.0)	4.2	NA		6.07
2-Dec-08	NA		0 (7.9)	3.3	NA		3.53
11-Jan-10	NA		0 (60.8)	40.3	NA		9.81
7-Dec-10	NA		0 (13.7)	7.9	NA		14.79
23-Jan-12	NA		12.4 (16)	7	NA		13.54
29-Jan-13	NA		32.4 (5.4)	4.2	NA		7.03
18-Dec-13	NA		13.2 (3.9)	2.5	NA		19.92
10-Dec-14	NA		149 (24.2)	17.3	NA		5.507
19-Jan-16	NA		26.4 (4.1)	2.8	NA		2.529
8-Feb-17	NA		16.9 (4.0)	2.6	NA		2.775
<b>COMPLIANCE MONITORING WELLS</b>							
<b>MW-22S</b>							
3-Dec-03	ND (177.848)		NA		ND (9.890)		NA
16-Dec-04	37.54	181.884	NA		4.09	2.43	NA
21-Dec-05	ND (319.180)		NA		ND ( 20000.000)		NA
2-Mar-06	ND (273.9602) <sup>e</sup>		NA		10.75 D	1.95	NA
12-Dec-06	161	41.2	30.5		16.8	6.1	5.77
5-Dec-07	NA		55.1 (12.8)	5.5	NA		2.43
2-Dec-08	NA		0.4 (7.9)	3.4	NA		0.03
11-Jan-10	NA		3.8 (5.1)	3.3	NA		8.66
7-Dec-10	NA		81.1 (22.2)	13.8	NA		9.34
26-Jan-12	NA		25 (10.1)	4.9	NA		25.01
29-Jan-13	NA		80.5 (5.4)	5.1	NA		31.26
16-Dec-13	NA		9.1 (3.9)	2.5	NA		9.45
9-Dec-14	NA		112 (4.3)	5.1	NA		29.11
20-Jan-16	NA		83.5 (3.7)	3.5	NA		6.899
8-Feb-17	NA		352 (22.9)	17.8	NA		20.78

**Table 4B**  
**Ground Water Analytical Results-Radiochemical**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Gross Alpha Particle (pCi/L) (Mthd E900.0) <sup>c</sup>		Gross Alpha Particle (pCi/L) (LIQUID SCINT) <sup>c</sup>		Ra-226/Ra-228 Combined (pCi/L) (E903.0 & RA-05)		Ra-226/Ra-228 Combined (pCi/L) (7500 Ra B M & EPA904/9320)
	Result	Error +/- 2 Sigma	Result (detection Limit)	Error +/- 2 Sigma	Result	Error +/- 2 Sigma	Result
<b>COMPLIANCE MONITORING WELLS</b>							
<b>MW-22M</b>							
3-Dec-03	ND (27.692)		NA		2.65	1.82	NA
16-Dec-04	ND (78.992)		NA		3.46	1.35	NA
21-Dec-05	ND (60.950)		NA		2.12	2	NA
12-Dec-06	19.1	4.2	NA		3.3	0.8	NA
5-Dec-07	NA		4.4 (5.0)	2.1	NA		2.47
2-Dec-08	NA		11.7 (7.9)	3.3	NA		7.84
11-Jan-10	NA		31.5 (9.1)	6	NA		0.652
7-Dec-10	NA		2.59 (9.0)	5.3	NA		0.652
26-Jan-12	NA		22 (4.9)	10.1	NA		1.084
29-Jan-13	NA		22.7 (5.4)	4	NA		2.593
16-Dec-13	NA		14.3 (3.9)	2.5	NA		0.327
9-Dec-14	NA		45.3 (4.3)	3.7	NA		1.845
20-Jan-16	NA		24.8 (3.7)	2.6	NA		1.521
8-Feb-17	NA		29.7 (4.0)	2.8	NA		2.609
<b>MW-22D</b>							
3-Dec-03	ND (4.028)		NA		ND (2.180)		NA
16-Dec-04	ND (7.858)		NA		ND (0.74)		NA
21-Dec-05	ND (7.400)		NA		ND (1.670)		NA
12-Dec-06	14.6	0.9	NA		3.1	0.8	
5-Dec-07	NA		0.7 (5.0)	2.1	NA		2.23
2-Dec-08	NA		0 (7.9)	3.3	NA		1.393
11-Jan-10	NA		0 (7.6)	5	NA		0.692
7-Dec-10	NA		0 (5.2)	2.9	NA		1.014
26-Jan-12	NA		5.0 (4.3)	10.1	NA		3.01
30-Jan-13	NA		6.8 (5.4)	3.6	NA		1.258
16-Dec-13	NA		5.8 (5.3)	3.2	NA		0.854
9-Dec-14	NA		8.8 (4.3)	2.8	NA		1.083
20-Jan-16	NA		7.8 (3.7)	2.3	NA		2.229
8-Feb-17	NA		9.4 (2.4)	3.8	NA		0.019
<b>MW-23S</b>							
2-Dec-03	ND (135.853)		NA		ND (2.190)		NA
16-Dec-04	ND (301.104)		NA		1.5	4.72	NA
21-Dec-05	ND (317.120)		NA		ND (418.000)		NA
2-Mar-06	ND (218.3769) <sup>e</sup>		NA		24.76 <sup>d</sup>	3.89	NA
12-Dec-06	164	23	27.5		20.1	4.8	17.33
5-Dec-07	NA		0 (5.1)	2.2	NA		2.97
2-Dec-08	NA		8.1 (7.9)	3.4	NA		6.79
11-Jan-10	NA		111 (8)	5.3	NA		2.73
6-Dec-10	NA		22.5 (24.7)	15	NA		5.4
26-Jan-12	NA		14.1 (10.1)	4.6	NA		20.36
30-Jan-13	NA		33.3 (5.7)	4.4	NA		14.36
17-Dec-13	NA		2.4 (3.9)	2.3	NA		11.56
10-Dec-14	NA		56.8 (4.3)	4.0	NA		21.76
20-Jan-16	NA		-35.1 (12.5)	7.8	NA		17.63
8-Feb-17	NA		32.5 (16.2)	10.1	NA		16.18
<b>MW-23M</b>							
2-Dec-03	ND (19.179)		NA		ND (2.090)		NA
17-Dec-04	ND (44.838)		NA		9.19	1.58	NA
21-Dec-05	ND (37.000)		NA		3.73	1.93	NA
12-Dec-06	14.6	4.2	NA		1.4	0.5	NA
5-Dec-07	NA		7 (5.0)	2.1	NA		5.27
2-Dec-08	NA		33.8 (8.3)	3.5	NA		5.02
11-Jan-10	NA		21.3 (10.7)	7	NA		4.39
6-Dec-10	NA		17.4 (5.5)	3.6	NA		1.622
26-Jan-12	NA		26.8 (10.1)	5	NA		5.95
30-Jan-13	NA		17.4 (5.4)	3.9	NA		4.82
17-Dec-13	NA		18.2 (5.8)	3.7	NA		1.568
10-Dec-14	NA		27.3 (4.3)	3.3	NA		3.76
20-Jan-16	NA		20.7 (3.7)	2.6	NA		0.603
8-Feb-17	NA		166 (18.2)	18.2	NA		2.99
<b>MW-23D</b>							
2-Dec-03	ND (4.419)		NA		ND (2.040)		NA
17-Dec-04	ND (73.218)		NA		6.52	1.56	NA
21-Dec-05	ND (3.930)		NA		ND (1.570)		NA
11-Dec-06	1.4	0.6	NA		ND (0.2)		NA
5-Dec-07	NA		0 (5.0)	2.1	NA		3.52
2-Dec-08	NA		0 (10.7)	4.5	NA		2.04
11-Jan-10	NA		20.7 (9.7)	6.4	NA		0.817
6-Dec-10	NA		2.88 (5.2)	3.1	NA		1.555
26-Jan-12	NA		13.4 (10.1)	4.6	NA		3.79
30-Jan-13	NA		8.4 (5.4)	3.7	NA		1.929
17-Dec-13	NA		2.2 (4.8)	2.8	NA		1.567
10-Dec-14	NA		10.1 (4.3)	2.8	NA		2.577
20-Jan-16	NA		12.7 (3.7)	2.4	NA		2.156
8-Feb-17	NA		13.2 (3.8)	2.5	NA		0.958

**Table 4B**  
**Ground Water Analytical Results-Radiochemical**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Gross Alpha Particle (pCi/L) (Mthd E900.0) <sup>c</sup>		Gross Alpha Particle (pCi/L) (LIQUID SCINT) <sup>c</sup>		Ra-226/Ra-228 Combined (pCi/L) (E903.0 & RA-05)		Ra-226/Ra-228 Combined (pCi/L) (7500 Ra B M & EPA904/9320)
	Result	Error +/- 2 Sigma	Result (detection Limit)	Error +/- 2 Sigma	Result	Error +/- 2 Sigma	Result
<b>COMPLIANCE MONITORING WELLS</b>							
<b>MW-24S</b>							
2-Dec-03	ND (22.218)		NA		2.06	1.06	NA
16-Dec-04	ND (10.489)		NA		3.43	1.53	NA
21-Dec-05	ND (19.220)		NA		ND (1.600)		NA
11-Dec-06	2.9	3.7	NA		2.6	1.2	NA
4-Dec-07	NA		3.6 (5.0)	2.1	NA		1.85
2-Dec-08	NA		4.2 (8.3)	3.5	NA		<b>18.57</b>
11-Jan-10	NA		0 (7.5)	4.9	NA		0.398
6-Dec-10	NA		0 (5.2)	2.9	NA		0.074
24-Jan-12	NA		4.6 (10.1)	4.3	NA		3.503
30-Jan-13	NA		0.7 (5.4)	3.5	NA		0.792
17-Dec-13	NA		6.5 (5.2)	3.2	NA		-0.519
10-Dec-14	NA		9.0 (17.2) J	10.2	NA		3.322
20-Jan-16*	NA		<b>30.6 (37.1)</b>	22.3	NA		0.253
8-Feb-17	NA		3.5 (3.7)	2.3	NA		1.496
<b>MW-24M</b>							
2-Dec-03	ND (21.639)		NA		2.19	1.18	NA
16-Dec-04	ND (33.148)		NA		2.89	1.13	NA
21-Dec-05	<b>33.37</b>	9.71	NA		2.93	1.91	NA
12-Dec-06	10.9	4	NA		ND (0.2)		NA
5-Dec-07	NA		11.6 (5.2)	2.2	NA		3.12
2-Dec-08	NA		8.8 (8.3)	3.5	NA		2.91
11-Jan-10	NA		<b>40.8 (9.4)</b>	6.2	NA		<b>9.23</b>
6-Dec-10	NA		<b>25.5 (7.6)</b>	5	NA		3.86
24-Jan-12	NA		<b>34.7 (10.1)</b>	5.2	NA		<b>6.65</b>
30-Jan-13	NA		<b>16.4 (5.6)</b>	4	NA		4.49
17-Dec-13	NA		10.0 (5.2)	3.2	NA		2.42
10-Dec-14	NA		NS	NS	NA		NS
20-Jan-16	NA		<b>36.0 (3.7)</b>	2.8	NA		<b>8.20</b>
8-Feb-17	NA		<b>33.5 (3.3)</b>	2.5	NA		<b>6.06</b>
<b>MW-24D</b>							
2-Dec-03	ND (4.549)		NA		ND (2.150)		NA
16-Dec-04	ND (6.567)		NA		0.57	0.97	NA
21-Dec-05	ND (7.520)		NA		ND (1.570)		NA
11-Dec-06	2.2	0.7	NA		ND (0.2)		NA
5-Dec-07	NA		6.5 (5.1)	2.1	NA		3.44
2-Dec-08	NA		0 (33.0)	14.0	NA		<b>15.06</b>
11-Jan-10	NA		14.5 (5.5)	8.3	NA		1.734
6-Dec-10	NA		0 (5.2)	3.0	NA		1.181
24-Jan-12	NA		0.9 (10.1)	4.2	NA		1.538
30-Jan-13	NA		0.9 (5.4)	3.5	NA		0.635
17-Dec-13	NA		9.8 (9.9)	6.0	NA		0.239
10-Dec-14	NA		8.5 (4.3)	2.8	NA		0.905
20-Jan-16	NA		7.0 (3.7)	2.3	NA		3.809
8-Feb-17	NA		5.7 (3.7)	2.3	NA		<b>24.5</b>
<b>MW-25S</b>							
2-Dec-03	ND (24.586)		NA		ND (8.410)		NA
16-Dec-04	<b>27.31</b>	9.748	NA		<b>25.79</b>	5.39	NA
21-Dec-05	ND (50.440)		NA		<b>18.32</b>	3.5	NA
11-Dec-06	<b>38.5</b>	5.8	NA		<b>25.1</b>	1.4	NA
4-Dec-07	NA		<b>31.5 (6.4)</b>	2.7	NA		4.85
2-Dec-08	NA		8.6 (12.1)	5.1	NA		<b>39.9</b>
11-Jan-10	NA		<b>24.4</b>	11.4	NA		<b>28.1</b>
6-Dec-10	NA		0 (20.8)	10.8	NA		<b>37.39</b>
24-Jan-12	NA		<b>26.4 (10.1)</b>	5	NA		<b>62.1</b>
31-Jan-13	NA		<b>123 (28.6)</b>	20.1	NA		<b>60.6</b>
17-Dec-13	NA		13.9 (5.4)	3.4	NA		<b>16.33</b>
10-Dec-14	NA		<b>63.3 (4.3)</b>	4.1	NA		<b>92.5</b>
20-Jan-16	NA		<b>251 (37.1)</b>	26.2	NA		<b>19.63</b>
8-Feb-17	NA		<b>93.6 (15.5)</b>	10.7	NA		<b>66.2</b>
<b>MW-25M</b>							
2-Dec-03	ND (2.470)		NA		ND (19.761)		NA
17-Dec-04	ND (30.251)		NA		<b>5.28</b>	10.24	NA
21-Dec-05	ND (43.250)		NA		2.01	2.54	NA
11-Dec-06	14.2	4.1	NA		1.3	0.5	NA
4-Dec-07	NA		0 (5.1)	2.2	NA		4.68
2-Dec-08	NA		<b>18.8 (8.3)</b>	3.5	NA		<b>7.29</b>
11-Jan-10	NA		<b>36 (9.6)</b>	6.3	NA		<b>10.87</b>
6-Dec-10	NA		14.4 (5.5)	3.6	NA		1.776
24-Jan-12	NA		<b>23.2 (10.1)</b>	4.9	NA		4.481
31-Jan-13	NA		<b>18.3 (5.4)</b>	3.9	NA		<b>18.080</b>
22-Jan-14	NA		<b>23.0 (10.1)</b>	6.2	NA		<b>5.840</b>
10-Dec-14	NA		<b>82.5 (17.2)</b>	12.5	NA		<b>8.340</b>
20-Jan-16	NA		<b>24.5 (3.7)</b>	2.6	NA		<b>6.900</b>
8-Feb-17	NA		<b>28.6 (3.5)</b>	2.5	NA		<b>5.388</b>
<b>MW-25D</b>							
2-Dec-03	ND (3.668)		NA		ND (2.180)		NA
17-Dec-04	ND (8.506)		NA		<b>40.01</b>	14.04	NA
21-Dec-05	ND (6.810)		NA		ND (1.710)		NA
11-Dec-06	3	0.6	NA		ND (0.2)		NA
4-Dec-07	NA		11.7 (5.1)	2.2	NA		3.4
2-Dec-08	NA		<b>19.1 (8.3)</b>	3.5	NA		0.301
11-Jan-10	NA		0 (10.5)	6.9	NA		1.401
6-Dec-10	NA		2.32 (5.2)	3.1	NA		0.548
24-Jan-12	NA		6.1 (10.1)	4.4	NA		1.232
31-Jan-13	NA		5.4 (5.4)	3.6	NA		0.438
17-Dec-13	NA		0.4 (5.4)	3.2	NA		0.816
10-Dec-14	NA		10.8 (4.3)	2.8	NA		1.249
20-Jan-16	NA		4.0 (3.7)	2.2	NA		0.108
8-Feb-17	NA		9.8 (3.6)	2.3	NA		0.54

**Table 4B**  
**Ground Water Analytical Results-Radiochemical**  
**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Sample Date	Gross Alpha Particle (pCi/L) (Mthd E900.0) <sup>c</sup>		Gross Alpha Particle (pCi/L) (LIQUID SCINT) <sup>c</sup>		Ra-226/Ra-228 Combined (pCi/L) (E903.0 & RA-05)		Ra-226/Ra-228 Combined (pCi/L) (7500 Ra B M & EPA904/9320)
	Result	Error +/- 2 Sigma	Result (detection Limit)	Error +/- 2 Sigma	Result	Error +/- 2 Sigma	Result
<b>DETECTION MONITORING WELLS</b>							
<b>NDC-1</b>							
1-Dec-03	ND (543.414)		NA		231.81	17.91	NA
21-Dec-04	1792	859.319	NA		218	104	NA
20-Dec-05	ND (533.960)		NA		1180	65.2	NA
2-Mar-06	ND (758.7200) <sup>e</sup>		NA		69.02d	7.99	NA
12-Dec-06	178	13	1060		111	4.4	120.2
6-Dec-07	NA		27.7 (6.9)	2.9	NA		1.19
2-Dec-08	NA		0 (132.0)	55.8	NA		43.1
11-Jan-10	NA		638 (43.8)	29	NA		59.556
7-Nov-10	NA		36.5 (35.5)	21.3	NA		206.8
24-Jan-12	NA		1,677 (34.4)	38.1	NA		339.5
29-Jan-13	NA		1,230 (28.6)	30.8	NA		386.6
18-Dec-13	NA		295 (5.4)	6	NA		42.24
10-Dec-14	NA		677 (24.2)	25.8	NA		377
19-Jan-16	NA		1400 (37.1)	41.0	NA		275.4
8-Feb-17	NA		594 (17.2)	18.3	NA		237.7
<b>NDC-2</b>							
1-Dec-03	ND (431.534)		NA		99.89	12.46	NA
21-Dec-04	ND (1347.551)		NA		131.7	65.38	NA
20-Dec-05	ND (626.09)		NA		674.6	44.4	NA
2-Mar-06	ND (573.5251) <sup>e</sup>		NA		226.8d	8.86	NA
12-Dec-06	37.3	8.7	289		161	10.7	6.01
6-Dec-07	NA		0 (14.3)	6.0	NA		2.82
2-Dec-08	NA		0 (77.6)	32.9	NA		16.77
11-Jan-10	NA		349 (36.7)	24.2	NA		62.98
7-Dec-10	NA		27.7 (25.4)	15.2	NA		99.96
24-Jan-12	NA		605 (34.4)	20.4	NA		175.40
29-Jan-13	NA		740 (28.6)	26.6	NA		197.60
18-Dec-13	NA		777 (25.6)	25.8	NA		231.00
10-Dec-14	NA		768 (24.2)	27.0	NA		215.40
19-Jan-16	NA		673 (37.1)	32.5	NA		41.77
9-Feb-17	NA		243 (16.1)	13.4	NA		130.3
<b>PERIMETER ACTION LIMITS</b>							
<u>Perimeter Action Levels</u> Shallow and Medium Transmissive Zone <sup>a</sup>	15		15		5		5
<u>Perimeter Action Levels</u> Deep Trans - missive Zone <sup>b</sup>	15		15		5		5

**Notes**

- <sup>a</sup> The ground water Perimeter Action Levels for the Shallow and Medium Transmissive Zones were included in the AROD.
- <sup>b</sup> The ground water Perimeter Action Levels for the Deep Transmissive Zone were included in the AROD.
- <sup>c</sup> Excludes radon and uranium
- <sup>d</sup> Samples re-analyzed on March 2, 2006 by methods ARS-0020/EPA904 and ARS-010/EPA903 due to quality concerns with previous analytical methods, where EPA901.2 and RA-226 was inferred from BI-124.
- <sup>e</sup> Samples re-analyzed on March 2, 2006 using previous sampling method EPA900
- <sup>f</sup> Reporting limit increased due to sample matrix interference
- NA Not analyzed
- J Estimated value
- NS Not sampled due to well damage
- \* MW-24S and MW-24D were incorrectly labeled for the 1/20/2016 sampling event and as such MW-24S is labeled as MW-24D in the laboratory report and vice versa

Yellow boxed result indicates value exceeds Perimeter Action Level

Blue boxed result indicates Min Detection Limit exceeds Perimeter Action Level

**Table 5**  
**Summary of Trip Blank Analytical Results**  
**February 2017 Sampling Event**

**Tex Tin Superfund Site OU-1**  
**Texas City, Texas**

Constituent of Concern	Analytical Method	Units	Trip Blank (B17020863-001) 2/16/2017
1,2-Dichloroethane	SW8260B	mg/L	ND (1.0)
Benzene	SW8260B	mg/L	ND (1.0)
Bromodichloromethane	SW8260B	mg/L	ND (1.0)
Bromoform	SW8260B	mg/L	ND (1.0)
Chlorodibromomethane	SW8260B	mg/L	ND (1.0)
Chloroform	SW8260B	mg/L	ND (1.0)

Notes:

[a] This list of ground water Perimeter Action Levels for the Shallow and Medium Transmissive Zones are the risk-based alternative concentration limits (ACLs) for industrial land use that were included in the AROD.

[b] This list of ground water Perimeter Action Levels for the Deep Transmissive Zone is included in the AROD.

[c] Excludes radon and uranium.

J = Estimated value.

ND = Not Detected at the reporting limit shown in parentheses

Bold result values indicate an exceedance of the action level

## FIGURES

#### LEGEND

- ▲ Approximate Deep Compliance Monitor Well Location
- Approximate Medium Compliance Monitor Well Location
- Approximate Shallow Compliance Monitor Well Location
- Approximate Shallow Detection Monitor Well Location
- ▲ Approximate Deep Performance Monitor Well Location
- Approximate Medium Performance Monitor Well Location
- Approximate Shallow Performance Monitor Well Location
- Barrier Wall
- Approximate Property Boundary

TEX TIN SUPERFUND SITE TEX TIN SETTLING PARTNERS TEXAS CITY, GALVESTON COUNTY, TEXAS	<b>MONITOR WELL LOCATION MAP</b>
JOB NUMBER: 15-0342 FILE NAME: WELL_LOCATION_MAP DATE: 3/28/2017 DRAWN BY: AM APPROVED BY: AN	Copyright © 2017

**FIGURE  
1**

**LEGEND**

- (●) Approximate Shallow Compliance Monitor Well Location
- (●) Approximate Shallow Detection Monitor Well Location
- (●) Approximate Shallow Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- (Yellow Box) Approximate Property Boundary
- (Blue Number) Groundwater Elevation (ft AMSL)

**SHALLOW POTENTIOMETRIC SURFACE MAP**  
4/5/2016

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_SHALLOW  
DATE: 6/30/2016  
DRAWN BY: KA  
APPROVED BY: AN

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**FIGURE**  
**2**

**LEGEND**

- Approximate Medium Compliance Monitor Well Location
- Approximate Medium Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (1.85') Groundwater Elevation (ft AMSL)
- (NG) Not Gauged

**MEDIUM POTENTIOMETRIC SURFACE MAP**  
4/5/2016

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_MEDIUM  
DATE: 6/30/2016  
DRAWN BY: KA  
APPROVED BY: AN  
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**LEGEND**

- ▲ Approximate Deep Compliance Monitor Well Location
- ▲ Approximate Deep Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (-4.61') Groundwater Elevation (ft AMSL)

**DEEP POTENTIOMETRIC SURFACE MAP  
4/5/2016**

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

**FIGURE  
4**

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_DEEP  
DATE: 6/30/2016  
DRAWN BY: KA  
APPROVED BY: AN

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**LEGEND**

- Approximate Shallow Compliance Monitor Well Location
- Approximate Shallow Detection Monitor Well Location
- Approximate Shallow Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (1.85') Groundwater Elevation (ft AMSL)

**SHALLOW POTENTIOMETRIC SURFACE MAP**  
7/7/2016

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_SHALLOW  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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**FIGURE**  
**5**

#### LEGEND

- Approximate Medium Compliance Monitor Well Location
- Approximate Medium Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (1.85') Groundwater Elevation (ft AMSL)
- (NG) Not Gauged

#### MEDIUM POTENTIOMETRIC SURFACE MAP 7/7/2016

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_MEDIUM  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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**FIGURE  
6**

**LEGEND**

-  Approximate Deep Compliance Monitor Well Location
-  Approximate Deep Performance Monitor Well Location
-  Groundwater Gradient Contour (ft AMSL)
-  Groundwater Flow Direction
-  Barrier Wall
-  Approximate Property Boundary
- (-4.61') Groundwater Elevation (ft AMSL)

**DEEP POTENTIOMETRIC SURFACE MAP**

7/7/2016

 TEX TIN SUPERFUND SITE  
 TEX TIN SETTLING PARTNERS  
 TEXAS CITY, GALVESTON COUNTY, TEXAS

 JOB NUMBER: 15-0342  
 FILE NAME: GW\_GRADIENT\_DEEP  
 DATE: 9/21/2017  
 DRAWN BY: AM  
 APPROVED BY: BG

**FIGURE**  
**7**

#### LEGEND

- Approximate Shallow Compliance Monitor Well Location
- Approximate Shallow Detection Monitor Well Location
- Approximate Shallow Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (1.85') Groundwater Elevation (ft AMSL)

#### SHALLOW POTENTIOMETRIC SURFACE MAP 11/28/2016

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_SHALLOW  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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#### LEGEND

- Approximate Medium Compliance Monitor Well Location
- Approximate Medium Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (1.85') Groundwater Elevation (ft AMSL)
- (NG) Not Gauged

#### MEDIUM POTENTIOMETRIC SURFACE MAP 11/28/2016

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_MEDIUM  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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**FIGURE  
9**

#### LEGEND

-  Approximate Deep Compliance Monitor Well Location
-  Approximate Deep Performance Monitor Well Location
-  Groundwater Gradient Contour (ft AMSL)
-  Groundwater Flow Direction
-  Barrier Wall
-  Approximate Property Boundary
- (-4.61') Groundwater Elevation (ft AMSL)

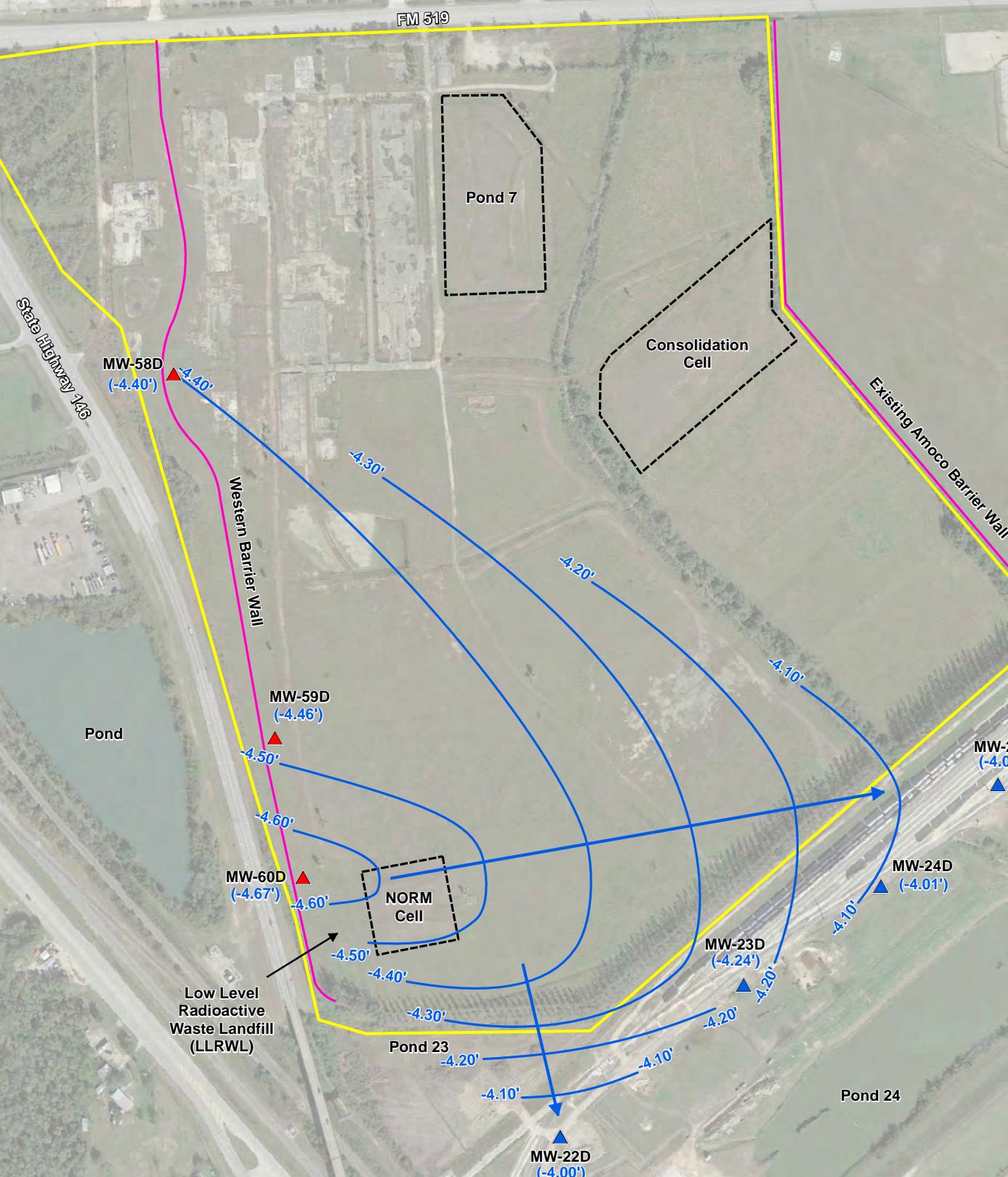
#### DEEP POTENTIOMETRIC SURFACE MAP 11/28/2016

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_DEEP  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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**FIGURE  
10**



**LEGEND**

- (●) Approximate Shallow Compliance Monitor Well Location
- (●) Approximate Shallow Detection Monitor Well Location
- (●) Approximate Shallow Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- (Yellow Box) Approximate Property Boundary
- (Blue Number) Groundwater Elevation (ft AMSL)

**TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS**

**SHALLOW POTENTIOMETRIC SURFACE MAP**  
**2/9/2017**

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_SHALLOW  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG  
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#### LEGEND

- Approximate Medium Compliance Monitor Well Location
- Approximate Medium Performance Monitor Well Location
- Groundwater Gradient Contour (ft AMSL)
- Groundwater Flow Direction
- Barrier Wall
- Approximate Property Boundary
- (1.85') Groundwater Elevation (ft AMSL)
- (NG) Not Gauged

#### MEDIUM POTENTIOMETRIC SURFACE MAP 2/9/2017

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_MEDIUM  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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**FIGURE  
12**

#### LEGEND

-  Approximate Deep Compliance Monitor Well Location
-  Approximate Deep Performance Monitor Well Location
-  Groundwater Gradient Contour (ft AMSL)
-  Groundwater Flow Direction
-  Barrier Wall
-  Approximate Property Boundary
- (-4.61') Groundwater Elevation (ft AMSL)

#### DEEP POTENTIOMETRIC SURFACE MAP 2/9/2017

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_GRADIENT\_DEEP  
DATE: 9/21/2017  
DRAWN BY: AM  
APPROVED BY: BG

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**FIGURE  
13**

#### LEGEND

-  Approximate Shallow Compliance Monitor Well Location
-  Approximate Shallow Detection Monitor Well Location
-  Approximate Shallow Performance Monitor Well Location
-  pH Contour
-  Barrier Wall
-  Approximate Property Boundary
- (7.31) pH
- (NM) Not Measured

#### SHALLOW PH CONTOUR MAP

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_PH  
DATE: 3/23/2017  
DRAWN BY: AM  
APPROVED BY: AV  
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#### LEGEND

- Approximate Medium Compliance Monitor Well Location
- Approximate Medium Performance Monitor Well Location
- pH Contour
- Barrier Wall
- Approximate Property Boundary
- (7.31) pH
- (NM) Not Measured

#### MEDIUM PH CONTOUR MAP

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_PH  
DATE: 3/14/2017  
DRAWN BY: AM  
APPROVED BY: AV  
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### LEGEND

-  Approximate Deep Compliance Monitor Well Location
-  Approximate Deep Performance Monitor Well Location
-  pH Contour
-  Barrier Wall
-  Approximate Property Boundary
- (7.31) pH
- (NM) Not Measured

### DEEP PH CONTOUR MAP

TEX TIN SUPERFUND SITE  
TEX TIN SETTLING PARTNERS  
TEXAS CITY, GALVESTON COUNTY, TEXAS

JOB NUMBER: 15-0342  
FILE NAME: GW\_PH  
DATE: 3/14/2017  
DRAWN BY: AM  
APPROVED BY: AV

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**ATTACHMENT 1**  
**LOW-FLOW GROUNDWATER SAMPLING LOGS**



# **TEX TIN SUPERFUND SITE LOW-FLOW GROUNDWATER SAMPLING LOG**

<b>Project:</b>	Tex Tin Superfund Site
<b>Project No.:</b>	15-0342
<b>Site Location:</b>	Texas City, Texas
<b>Monitor Well No.:</b>	MW-8S (FD-01) (MS/MSD 1)
<b>Date Purged/Sampled:</b>	2-8-17 <b>Sampled By:</b> AV

## MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 30.43 ft.

Static Depth to Groundwater (DTW): 6.74 ft.

Screen Length (SL) from Boring Logs: \_\_\_\_\_ - ft.

Depth to Top of Well Screen (TD-SL): \_\_\_\_\_ - ft.

Height of Water Column ( $H=TD-DTW$ ): 23.69 ft.

# WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 3.86 gal. (1 well volume) 11.58 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> " gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

## PURGING METHOD

- Peristaltic Pump
- Low-flow Submersible Pump
- Other (Specify) \_\_\_\_\_

## METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

## LOW-FLOW MONITORING PARAMETERS

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation:  $H \times \text{Well Diameter}^2 \times 0.0408 = 1$  well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.24 gal. 0.9 liters

**Date/Time of** \_\_\_\_\_

**Sample Collection:** 2/8/17 **Date** 1358 **Time**



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-22D  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AM

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 136.58 ft.  
 Static Depth to Groundwater (DTW): 12.50 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 124.08 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 20.23 gal. (1 well volume) 60.68 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1325	0.0	25.92	2.23	1.71	7.80	0.0	12.50
1328	0.3	24.76	1.93	0.62	7.68	0.0	12.50
1331	0.6	24.46	1.88	0.38	7.65	0.0	12.50
1334	0.9	24.51	1.86	0.23	7.63	0.0	12.50
1337	1.2	24.51	1.85	0.15	7.61	0.0	12.51
1340	1.5	24.59	1.84	0.12	7.58	0.0	12.51

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.39 gal. 1.5 liters

**Date/Time of Sample Collection:** 2/8/17 Date 1340 Time



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-22M  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AM

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 64.28 ft.  
 Static Depth to Groundwater (DTW): 6.59 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 57.69 ft.

**WELL CASING VOLUME CALCULATIONS**

<input checked="" type="checkbox"/> 2" Well (H x 0.163 gal/ft)	9.40	gal. (1 well volume)	28.21	gal. (3 well volumes)
<input type="checkbox"/> 4" Well (H x 0.653 gal/ft)		gal. (1 well volume)		gal. (3 well volumes)
<input type="checkbox"/> Other (Specify Diameter) <sup>4</sup>	"	gal. (1 well volume)		gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

<input checked="" type="checkbox"/> Peristaltic Pump	<input type="checkbox"/> Low-flow Submersible Pump	
<input type="checkbox"/> Bailer	<input checked="" type="checkbox"/> Dedicated	<input type="checkbox"/> Disposable
<input type="checkbox"/> Other (Specify) _____		

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1348	0.0	26.33	18.5	3.04	6.83	0.0	6.59
1351	0.3	26.30	18.7	2.74	6.86	0.0	6.59
1354	0.6	26.33	18.8	3.01	6.96	0.0	6.59
1357	0.9	26.39	18.9	3.49	6.96	0.0	6.60
1400	1.2	26.43	18.9	3.37	6.92	0.0	6.60
1403	1.5	26.52	18.9	3.20	6.88	0.0	6.60

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.39 gal. 1.5 liters

**Date/Time of Sample Collection:** 2/8/17 Date 1403 Time



# TEX TIN SUPERFUND SITE LOW-FLOW GROUNDWATER SAMPLING LOG

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-22S  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AM

## MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 30.84 ft.  
Static Depth to Groundwater (DTW): 6.76 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 24.08 ft.

## WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 3.93 gal. (1 well volume) 11.78 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

## PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

## METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

## LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1430	0.0	24.79	78.6	0.66	5.51	0.0	6.76
1433	0.3	25.76	75.7	0.14	5.53	0.0	6.76
1436	0.6	26.28	75.7	0.06	5.54	0.0	6.77
1439	0.9	26.57	75.8	0.02	5.54	0.0	6.77
1442	1.2	26.70	76.0	0.00	5.54	0.0	6.77

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.32 gal. 1.2 liters

**Date/Time of**

**Sample Collection:** 2/8/17 Date 1442 Time



TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG

Project: Tex Tin Superfund Site  
Project No.: 15-0342  
Site Location: Texas City, Texas  
Monitor Well No.: MW-23D  
Date Purged/Sampled: 2-8-17 Sampled By: AM

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 142.00 ft.  
Static Depth to Groundwater (DTW): 10.62 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 131.38 ft.

WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 21.41 gal. (1 well volume) 64.24 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
0947	0.0	22.55	2.96	1.21	7.47	0.0	10.62
0950	0.3	22.42	2.76	0.43	7.42	0.0	10.62
0953	0.6	22.42	2.73	0.21	7.41	0.0	10.62
0956	0.9	22.36	2.72	0.06	7.40	0.0	10.63
0959	1.2	22.35	2.72	0.01	7.39	0.0	10.63
1002	1.5	22.36	2.72	0.00	7.39	0.0	10.64

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

Purge Flow Rate: 0.026 gpm 0.1 liter/min (3.8 x gpm)

Volume Purged: 0.39 gal. 1.5 liters

Date/Time of  
Sample Collection: 2/8/17 Date 1002 Time



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-23M  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AM

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 56.75 ft.  
 Static Depth to Groundwater (DTW): 3.98 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 52.77 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 8.60 gal. (1 well volume) 25.80 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft)        gal. (1 well volume)        gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup>       "       gal. (1 well volume)        gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1014	0.0	22.69	2.42	3.72	7.54	0.0	3.98
1017	0.3	22.59	2.16	3.74	7.49	0.0	3.98
1020	0.6	22.36	2.19	3.69	7.47	0.0	3.98
1023	0.9	22.40	2.58	3.35	7.42	0.0	3.98
1026	1.2	22.52	3.64	2.99	7.33	0.0	3.99
1029	1.5	22.47	6.07	1.35	7.24	0.0	3.99
1032	1.8	22.62	5.63	1.92	7.22	0.0	3.99
1035	2.1	22.77	5.64	1.98	7.20	0.0	3.99
1038	2.4	22.68	5.70	1.88	7.18	0.0	4.00

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm    0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.63 gal.    2.4 liters

**Date/Time of Sample Collection:** 2/8/17 Date 1038 Time



TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG

Project: Tex Tin Superfund Site  
Project No.: 15-0342  
Site Location: Texas City, Texas  
Monitor Well No.: MW-23S  
Date Purged/Sampled: 2-8-17 Sampled By: AM

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 27.32 ft.  
Static Depth to Groundwater (DTW): 3.77 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 23.55 ft.

WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 3.84 gal. (1 well volume) 11.52 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1047	0.0	23.59	73.6	0.43	5.20	15.9	3.77
1050	0.3	23.65	75.2	0.85	5.27	16.3	3.77
1053	0.6	23.73	75.3	0.70	5.28	22.4	3.77
1056	0.9	23.81	72.1	0.57	5.31	31.1	3.78
1059	1.2	23.90	60.0	0.59	5.41	17.6	3.78
1102	1.5	23.96	48.2	0.69	5.54	17.0	3.79
1105	1.8	23.91	43.7	0.90	5.60	20.0	3.79
1108	2.1	23.86	42.1	1.18	5.66	15.7	3.79
1111	2.4	23.83	41.8	1.44	5.69	7.8	3.79
1114	2.7	23.38	42.0	1.83	5.69	1.6	3.79
1117	3.0	23.27	42.1	2.19	5.69	0.0	3.79
1120	3.3	23.24	42.2	2.49	5.69	0.0	3.80
1123	3.6	23.23	42.1	2.68	5.68	0.0	3.80

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)  
**Volume Purged:** 0.95 gal. 3.6 liters  
**Date/Time of Sample Collection:** 2/8/17 Date 1123 Time  
**SHEET** 1 **OF** 1



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-24D  
**Date Purged/Sampled:** 2-7-17      **Sampled By:** AV

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 136.76 ft.  
 Static Depth to Groundwater (DTW): 8.68 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 128.08 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 20.88 gal. (1 well volume) 62.63 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft)        gal. (1 well volume)        gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup>       "       gal. (1 well volume)        gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1516	0	26.34	1.80	4.67	7.29	4.5	8.68
1519	0.3	25.09	1.78	1.80	7.27	4.2	8.69
1522	0.6	25.03	1.78	1.68	7.26	1.0	8.69
1525	0.9	24.95	1.78	1.54	7.24	2.9	8.69

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.24 gal. 0.9 liters

**Date/Time of Sample Collection:** 2/7/17 Date 1525 Time



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-24M  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AM

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 53.42 ft.  
 Static Depth to Groundwater (DTW): 2.77 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 50.65 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 8.26 gal. (1 well volume) 24.77 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft)        gal. (1 well volume)        gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup>       "       gal. (1 well volume)        gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
0834	0.0	21.37	14.1	1.35	6.73	0.0	2.77
0837	0.3	21.66	14.0	0.56	6.70	1.9	2.77
0840	0.6	21.79	14.0	0.33	6.70	0.5	2.77
0843	0.9	21.87	14.0	0.23	6.70	0.0	2.78
0846	1.2	21.93	14.0	0.14	6.70	0.0	2.78
0849	1.5	21.98	14.1	0.10	6.70	0.0	2.78
0852	1.8	22.02	14.0	0.07	6.70	0.0	2.78

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.47 gal. 1.8 liters

**Date/Time of Sample Collection:** 2/8/17 Date 0852 Time



# TEX TIN SUPERFUND SITE LOW-FLOW GROUNDWATER SAMPLING LOG

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-24S  
**Date Purged/Sampled:** 2-7-17      **Sampled By:** AM

## MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 27.22 ft.  
Static Depth to Groundwater (DTW): 3.49 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 23.73 ft.

## WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 3.87 gal. (1 well volume) 11.60 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

## PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

## METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

## LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1524	0.0	23.23	1.00	0.29	6.92	0.0	3.49
1527	0.3	23.20	1.00	0.30	6.92	0.0	3.49
1530	0.6	23.19	1.00	0.13	6.93	0.0	3.50
1533	0.9	23.20	1.00	0.11	6.93	0.0	3.50
1536	1.2	23.13	1.00	0.08	6.95	0.0	3.50

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.32 gal. 1.2 liters

**Date/Time of** 2/7/17      **Date** 1536      **Time**

**Sample Collection:**



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-25D  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AV

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 139.05 ft.  
 Static Depth to Groundwater (DTW): 9.80 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 129.25 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 21.07 gal. (1 well volume) 63.20 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft)        gal. (1 well volume)        gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup>       "       gal. (1 well volume)        gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1014	0.0	24.07	0.194	3.06	7.03	13.0	9.80
1017	0.3	23.59	0.176	2.12	6.83	11.2	9.82
1020	0.6	23.39	0.181	1.62	6.78	9.3	9.82
1023	0.9	23.77	0.195	1.40	6.76	9.1	9.82
1026	1.2	23.27	0.214	1.27	6.71	5.0	9.83
1029	1.5	23.24	0.220	1.22	6.67	6.4	9.83
1032	1.8	23.20	0.224	1.18	6.60	2.2	9.83

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.47 gal. 1.8 liters

**Date/Time of Sample Collection:** 2/8/17 Date 1032 Time



TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG

Project: Tex Tin Superfund Site  
Project No.: 15-0342  
Site Location: Texas City, Texas  
Monitor Well No.: MW-25M  
Date Purged/Sampled: 2-8-17 Sampled By: AV

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 55.55 ft.  
Static Depth to Groundwater (DTW): 4.29 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 51.26 ft.

WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 8.36 gal. (1 well volume) 25.07 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1058	0.0	23.78	10.8	2.46	6.39	0.0	4.29
1101	0.3	23.48	11.6	1.25	6.60	0.0	5.05
1104	0.6	23.40	11.1	0.94	6.67	0.0	5.19
1107	0.9	23.15	11.4	0.85	6.67	0.0	5.23
1110	1.2	23.15	11.4	0.82	6.67	0.0	5.25

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

Purge Flow Rate: 0.026 gpm 0.1 liter/min (3.8 x gpm)

Volume Purged: 0.32 gal. 1.2 liters

Date/Time of

Sample Collection: 2/8/17 Date 1110 Time



# TEX TIN SUPERFUND SITE LOW-FLOW GROUNDWATER SAMPLING LOG

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-25S  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AV

## MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 24.72 ft.  
Static Depth to Groundwater (DTW): 6.28 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 18.44 ft.

## WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 3.01 gal. (1 well volume) 9.02 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

## PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

## METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

## LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1040	0.0	25.69	2.74	2.43	6.43	0.0	6.28
1043	0.3	23.95	71.0	1.25	4.80	0.0	6.37
1046	0.6	24.15	72.9	0.67	4.79	0.0	6.37
1049	0.9	24.22	74.0	0.66	4.81	0.0	6.40
1052	1.2	24.25	73.4	0.72	4.82	0.0	6.41

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.32 gal. 1.2 liters

**Date/Time of** 2/8/17      **Date** 1052      **Time**

**Sample Collection:**



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-32S  
**Date Purged/Sampled:** 2-9-17      **Sampled By:** AV

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 35.16 ft.  
 Static Depth to Groundwater (DTW): 5.41 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 29.75 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 4.85 gal. (1 well volume) 14.55 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft)        gal. (1 well volume)        gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup>       "       gal. (1 well volume)        gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1049	0.0	17.25	87.7	8.70	5.28	95.2	5.41
1052	0.3	17.88	86.6	1.95	5.15	70.4	6.30
1055	0.6	18.21	86.2	1.39	5.21	54.1	6.31
1058	0.9	18.40	85.7	1.22	5.27	57.7	6.32
1101	1.2	18.85	85.3	0.99	5.32	55.6	6.33
1104	1.5	18.90	85.0	0.92	5.30	54.1	6.33
1107	1.8	18.95	84.8	0.86	5.34	54.1	6.33

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm    0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.47 gal.    1.8 liters

**Date/Time of Sample Collection:** 2/9/17 Date 1107 Time



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** MW-61S (FD-02)  
**Date Purged/Sampled:** 2-8-17      **Sampled By:** AV

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 31.11 ft.  
 Static Depth to Groundwater (DTW): 7.26 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 23.85 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 3.89 gal. (1 well volume) 11.66 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1501	0.0	26.66	3.06	1.60	3.97	0.0	7.26
1504	0.3	26.55	2.58	1.05	3.81	0.0	8.13
1507	0.6	26.81	2.42	0.91	3.78	0.0	8.19
1510	0.9	27.28	2.36	0.83	3.78	0.0	8.26
1513	1.2	27.75	2.33	0.77	3.77	0.0	8.30

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm 0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.32 gal. 1.2 liters

**Date/Time of Sample Collection:** 2/8/17 Date 1513 Time



TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG

Project: Tex Tin Superfund Site  
Project No.: 15-0342  
Site Location: Texas City, Texas  
Monitor Well No.: NDC-1  
Date Purged/Sampled: 2-8-17 Sampled By: AM

MONITOR WELL INFORMATION

Total Depth of Monitor Well (TD): 32.09 ft.  
Static Depth to Groundwater (DTW): 6.90 ft.  
Screen Length (SL) from Boring Logs: - ft.  
Depth to Top of Well Screen (TD-SL): - ft.  
Height of Water Column (H=TD-DTW): 25.19 ft.

WELL CASING VOLUME CALCULATIONS

2" Well (H x 0.163 gal/ft) 4.11 gal. (1 well volume) 12.32 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft) \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup> \_\_\_\_\_ " \_\_\_\_\_ gal. (1 well volume) \_\_\_\_\_ gal. (3 well volumes)

PURGING METHOD

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

METHOD OF SAMPLE COLLECTION

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer  Dedicated  Disposable  
 Other (Specify) \_\_\_\_\_

LOW-FLOW MONITORING PARAMETERS

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
1554	0.0	24.41	100	0.64	2.83	58.2	6.90
1557	0.3	24.14	100	0.27	2.83	28.3	6.90
1600	0.6	23.88	100	0.07	2.85	11.8	6.90
1603	0.9	23.65	100	0.00	2.89	45.3	6.90
1606	1.2	23.50	100	0.00	2.91	87.6	6.90

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

Purge Flow Rate: 0.026 gpm 0.1 liter/min (3.8 x gpm)

Volume Purged: 0.32 gal. 1.2 liters

Date/Time of

Sample Collection: 2/8/17 Date 1606 Time



**TEX TIN SUPERFUND SITE LOW-FLOW  
GROUNDWATER SAMPLING LOG**

**Project:** Tex Tin Superfund Site  
**Project No.:** 15-0342  
**Site Location:** Texas City, Texas  
**Monitor Well No.:** NDC-2  
**Date Purged/Sampled:** 2-9-17      **Sampled By:** AM

**MONITOR WELL INFORMATION**

Total Depth of Monitor Well (TD): 34.42 ft.  
 Static Depth to Groundwater (DTW): 7.98 ft.  
 Screen Length (SL) from Boring Logs: - ft.  
 Depth to Top of Well Screen (TD-SL): - ft.  
 Height of Water Column (H=TD-DTW): 26.44 ft.

**WELL CASING VOLUME CALCULATIONS**

2" Well (H x 0.163 gal/ft) 4.31 gal. (1 well volume) 12.93 gal. (3 well volumes)  
 4" Well (H x 0.653 gal/ft)        gal. (1 well volume)        gal. (3 well volumes)  
 Other (Specify Diameter)<sup>4</sup>       "       gal. (1 well volume)        gal. (3 well volumes)

**PURGING METHOD**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Other (Specify) \_\_\_\_\_

**METHOD OF SAMPLE COLLECTION**

Peristaltic Pump  
 Low-flow Submersible Pump  
 Bailer     Dedicated     Disposable  
 Other (Specify) \_\_\_\_\_

**LOW-FLOW MONITORING PARAMETERS**

Time	Volume Purged	Temp.	Specific Conductivity	Dissolved Oxygen	pH	Turbidity	DTW
hr/min	Gal (cumulative)	°C	mS/cm	mg/L	-	NTU or FTU	feet
Targets	Not Established	+/- 0.5°C	+/- 10%	+/- 10%	+/- 0.1	Not Established	Not Established
0847	0.0	18.89	92.1	0.98	2.68	33.6	7.98
0850	0.3	20.39	87.3	0.42	2.96	18.2	7.98
0853	0.6	18.62	91.5	0.21	3.19	20.3	7.98
0856	0.9	18.44	91.5	0.12	3.31	14.3	7.98
0859	1.2	18.52	91.8	0.08	3.35	4.8	7.99
0902	1.5	18.67	97.3	0.02	3.40	0.0	8.00
0905	1.8	18.88	97.8	0.02	3.43	0.0	8.00
0908	2.1	19.14	97.5	0.00	3.45	0.0	8.00

Notes: 1. Well is stable if 3 consecutive measurements of temperature, specific conductivity, dissolved oxygen, pH are within their target ranges.  
 2. Low-flow target purge rate is 0.1 liters/min (0.026 gpm)  
 3. Well Volume Calculation: H x Well Diameter<sup>2</sup> x 0.0408 = 1 well volume

**Purge Flow Rate:** 0.026 gpm    0.1 liter/min (3.8 x gpm)

**Volume Purged:** 0.55 gal.    2.1 liters

**Date/Time of Sample Collection:** 2/9/17 Date 0908 Time

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**ATTACHMENT 2**  
**CALIBRATION LOGS**

## **Equipment Report Card**

**Ajax**

**Environmental**

**Horiba U-52**

**Sonde-BF89EXWG**

This equipment has been inspected prior to its shipment and the following items and general, observable condition have been described.

Please review this instrument upon its arrival to confirm the contents of this report. Should you recognize a deviation, please call 713-789-4149 to report your findings.

All items on this report will be reviewed upon the unit's return to AJAX Env. Any damage, lost items or unreasonable and unusual maintenance required to restore the unit to its reported condition will require additional charges to the customer.

1. Display: ..... x
2. Sonde: ..... x
3. Sonde Moisture Container: ..... \_\_\_\_\_
4. Manual: ..... x
5. Flow Thru Sampler (FTC): ..... x
6. Calibration Cup: ..... x
7. Small calibration solution: ..... x

**Auto Calibration Solution:**  
**Lot 5121716**  
**Exp. 12/30/17**

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1. Calibrated pH reading: 4.01
2. Calibrated Conductivity reading: 4.49 mS/cm
3. Calibrated DO reading: 8.84 mg/l
4. Calibrated Turbidity reading: 0.0 NTU
5. Temperature reading for calibration: 23.56 C

**Inspector: RS      Date 02-06-17**

## **Equipment Report Card**

**Ajax**

**Environmental**

**Horiba U-52**

**Sonde-4MME79CV**

This equipment has been inspected prior to its shipment and the following items and general, observable condition have been described.

Please review this instrument upon its arrival to confirm the contents of this report. Should you recognize a deviation, please call 713-789-4149 to report your findings.

All items on this report will be reviewed upon the unit's return to AJAX Env. Any damage, lost items or unreasonable and unusual maintenance required to restore the unit to its reported condition will require additional charges to the customer.

1. Display: ..... x
2. Sonde: ..... x
3. Sonde Moisture Container: ..... \_\_\_\_\_
4. Manual: ..... x
5. Flow Thru Sampler (FTC): ..... x
6. Calibration Cup: ..... x
7. Small calibration solution: ..... x

**Auto Calibration Solution:**  
**Lot 5121716**  
**Exp. 12/30/17**

---

1. Calibrated pH reading: 4.01
2. Calibrated Conductivity reading: 4.49 mS/cm
3. Calibrated DO reading: 8.84 mg/l
4. Calibrated Turbidity reading: 0.0 NTU
5. Temperature reading for calibration: 23.56 C

**Inspector: RS      Date 02-06-17**

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**ATTACHMENT 3**  
**2016 GROUNDWATER LEVELS**



**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

**Note:**

1. "X" Indicates monitoring wells that were converted to flush mounts.
  2. Data collected prior to January 2013 was provided to ESE by Project Navigator.
  3. "NG" Indicates monitoring wells that were not gauged.
  4. "NP" Indicates monitoring well was not present on the date gauging took place.
  5. "NA" Indicates TOC Elevation has not been surveyed yet.
  6. "NM" Indicates monitor well was not measured on the date gauging took place.

**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

Initial Readings		10/19/2006	4/30/2007	4/30/2007	4/30/2007	7/29/2007	7/29/2007	7/29/2007	11/26/2007	11/26/2007	11/26/2007	3/29/2008	3/29/2008	3/29/2008	7/14/2008	7/14/2008	7/14/2008	11/20/2008	11/20/2008	11/20/2008	
Well ID	Elevation TOC	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	
	(ft MSL)																				
MW-22D	8.71	(4.03)	131.00	12.75	(4.04)	131.00	12.95	(4.24)	133.95	12.72	(4.01)	133.92	12.48	(3.77)	133.91	12.52	(3.81)	133.90	12.79	(4.08)	
MW-22M	8.08	1.70	60.00	6.42	1.66	60.02	6.62	1.46	62.75	6.8	1.28	62.74	6.2	1.88	62.74	8.48	(0.40)	62.74	8.52	(0.44)	
MW-22S	8.81	3.01	27.98	5.78	3.03	27.98	5.98	2.83	30	5.45	3.36	30	5.5	3.31	30.00	7.88	0.93	30.00	7.71	1.10	
MW-23D	X	6.32	(5.33)	141.00	13.82	(5.37)	141.00	13.45	(5.00)	142.6	13.6	(5.15)	142.62	13.56	(5.11)	142.62	13.90	(5.45)	142.60	13.98	(5.53)
MW-23M	X	6.40	1.40	56.02	7.60	1.20	56.02	7.26	1.54	58.3	7.58	1.22	58.3	7.46	1.34	58.32	8.52	0.28	58.30	8.69	0.11
MW-23S	X	6.09	2.22	27.00	7.04	1.98	27.00	6.84	2.18	29	5.21	3.81	29	5.32	3.70	29.02	7.30	1.72	29.02	7.46	1.56
MW-24D	X	4.75	(3.17)	136.24	12.40	(3.52)	136.22	12.21	(3.33)	138.3	13.44	(4.56)	138.28	13.22	(4.34)	138.24	13.20	(4.32)	138.25	13.33	(4.45)
MW-24M	X	4.52	0.25	56.02	10.00	(0.83)	56.04	9.83	(0.66)	58.1	8.72	0.45	58.06	8.5	0.67	50.04	10.08	(0.91)	50.02	10.14	(0.97)
MW-24S	X	4.95	1.25	27.00	7.78	0.92	27.00	7.62	1.08	31.3	7.51	1.19	31.28	7.48	1.22	31.28	9.80	(1.10)	31.28	9.74	(1.04)
MW-25D	X	5.77	(3.77)	136.00	11.40	(3.83)	136.06	11.19	(3.62)	139.95	12.44	(4.87)	138.98	12.2	(4.63)	139.00	12.18	(4.61)	139.00	12.27	(4.70)
MW-25M	X	5.74	0.01	55.00	8.02	(0.47)	55.02	7.86	(0.31)	57.55	7.21	0.34	57.53	7.14	0.41	57.56	9.21	(1.66)	57.56	9.28	(1.73)
MW-25S	X	5.65	(0.63)	30.42	8.74	(0.92)	30.42	8.51	(0.69)	31.7	8.62	(0.80)	31.7	8.5	(0.68)	31.70	11.40	(3.58)	31.70	11.34	(3.52)
MW-32M		8.20	2.68	57.10	5.50	2.70	57.14	5.35	2.85	56.26	5.67	2.53	56.24	5.44	2.76	56.24	7.28	0.92	56.24	7.29	0.91
MW-32S		8.44	2.96	31.08	5.38	3.06	31.08	5.15	3.29	35.22	6.18	2.26	35.2	6.12	2.32	35.22	8.40	0.04	35.22	8.47	(0.03)
MW-58D	10.96	(4.50)	130.90	15.28	(4.32)	130.94	15.48	(4.52)	134.35	15.14	(4.18)	134.32	14.98	(4.02)	134.30	14.96	(4.00)	134.28	15.23	(4.27)	
MW-58M	10.90	4.40	51.50	6.22	4.68	51.50	7.40	3.50	55.04	7.15	3.75	55	7.04	3.86	55.02	8.82	2.08	55.00	8.98	1.92	
MW-58S	10.99	5.67	25.49	5.20	5.79	25.49	4.90	6.09	28.16	5.55	5.44	28.16	5.1	5.89	28.16	7.38	3.61	28.16	7.43	3.56	
MW-59D	11.17	(4.67)	135.98	15.24	(4.07)	135.94	14.90	(3.73)	139.52	15.55	(4.38)	139.48	15.28	(4.11)	139.50	15.27	(4.10)	139.48	15.56	(4.39)	
MW-59M	10.96	3.64	54.50	9.98	0.98	54.52	9.02	1.94	58.34	6.82	4.14	58.32	6.32	4.64	58.32	9.52	1.44	58.33	9.63	1.33	
MW-59S	10.97	5.29	26.50	5.48	5.49	26.50	4.88	6.09	29.96	5.15	5.82	29.95	5	5.97	29.98	7.40	3.57	30.00	7.46	3.51	
MW-60D	13.92	(3.88)	136.00	16.68	(2.76)	136.02	18.30	(4.38)	138.45	13.4	0.52	138.42	13.18	0.74	138.38	13.22	0.70	138.40	13.36	0.56	
MW-60M	13.89	3.69	58.00	9.82	4.07	58.00	10.68	3.21	61.5	11.03	2.86	61.52	10.92	2.97	61.50	12.40	1.49	61.50	12.46	1.43	
MW-60S	13.69	5.74	30.00	7.60	6.09	30.00	8.10	5.59	32.8	8.04	5.65	32.8	7.8	5.89	32.82	9.08	4.61	32.82	9.02	4.67	
MW-61M	13.02	3.38	55.00	8.90	4.12	55.00	6.84	6.18	57.24	10.11	2.91	57.24	9.8	3.22	57.22	11.84	1.18	57.22	12.18	0.84	
MW-61S	12.89	3.91	27.48	8.72	4.17	27.48	6.20	6.69	31.15	8.71	4.18	31.14	8.54	4.35	31.14	10.04	2.85	31.14	11.21	1.68	
MW-8M	9.81	3.71	52.00	8.30	1.51	52.02	8.20	1.61	56.44	6.54	3.27	56.46	6.3	3.51	56.48	8.68	1.13	56.50	8.72	1.09	
MW-8S	9.78	4.08	26.00	5.12	4.66	26.04	5.22	4.56	30.57	6.56	3.22	30.58	6.28	3.50	30.60	8.42	1.36	30.60	8.75	1.03	
NDC-1	14.08	5.02	28.02	8.80	5.28	28.02	8.45	5.63	32.11	6.78	7.30	32.1	6.62	7.46	32.08	6.88	7.20	32.07	6.93	7.15	
NDC-2	14.77	6.33	30.00	8.06	6.71	30.00	8.80	5.97	34.38	9.03	5.74	34.36	8.98	5.79	30.36	9.32	5.45	30.36	9.43	5.34	

Note:

1. "X" Indicates monitoring wells that were converted to flush mounts.

2. Data collected prior to January 2013 was

**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

Initial Readings		4/19/2009	4/19/2009	4/19/2009	7/17/2009	7/17/2009	7/17/2009	11/24/2009	11/24/2009	11/24/2009	3/20/2010	3/20/2010	3/20/2010	6/26/2010	6/26/2010	6/26/2010	9/5/2010	9/5/2010	9/5/2010	3/29/2011	
Well ID	Elevation TOC	Total Depth (ft MSL)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	
	(ft MSL)	(ft TOC)	(ft MSL)	(ft TOC)	(ft MSL)	(ft TOC)	(ft MSL)	(ft TOC)	(ft MSL)	(ft MSL)	(ft TOC)	(ft MSL)	(ft MSL)	(ft TOC)	(ft MSL)	(ft MSL)	(ft TOC)	(ft MSL)	(ft MSL)	(ft TOC)	
MW-22D	8.71	133.90	12.62	(3.91)	133.88	12.34	(3.63)	131.00	11.08	(2.37)	131.00	11.15	(2.44)	131.00	11.52	(2.81)	131.00	11.92	(3.21)	131.00	
MW-22M	8.08	62.75	7.68	0.40	62.73	8.02	0.06	60.00	7.30	0.78	60.00	7.45	0.63	60.00	7.66	0.42	60.00	7.95	0.13	60.00	
MW-22S	8.81	30.00	6.24	2.57	30.00	7.20	1.61	28.10	6.90	1.91	28.10	7.02	1.79	28.10	7.58	1.23	28.10	8.20	0.61	28.10	
MW-23D	X	6.32	142.64	13.74	(5.29)	139.50	11.35	(5.03)	137.84	10.22	(3.90)	137.90	10.35	(4.03)	137.90	10.62	(4.30)	137.90	10.96	(4.64)	137.90
MW-23M	X	6.40	58.28	8.04	0.76	56.98	6.30	0.10	53.78	5.98	0.42	53.80	6.10	0.30	53.80	5.97	0.43	53.80	5.90	0.50	53.80
MW-23S	X	6.09	29.00	6.84	2.18	26.70	5.18	0.91	24.06	4.99	1.10	24.10	5.05	1.04	24.10	4.91	1.18	24.10	4.80	1.29	24.10
MW-24D	X	4.75	138.22	13.08	(4.20)	134.22	9.50	(4.75)	132.90	8.50	(3.75)	132.90	8.62	(3.87)	132.90	8.96	(4.21)	132.90	9.36	(4.61)	132.90
MW-24M	X	4.52	50.00	9.88	(0.71)	53.62	5.12	(0.60)	51.38	4.44	0.08	51.40	4.59	(0.07)	51.40	4.66	(0.14)	51.40	4.81	(0.29)	51.40
MW-24S	X	4.95	31.30	8.06	0.64	27.18	6.72	(1.77)	23.25	5.22	(0.27)	23.20	5.39	(0.44)	23.20	5.69	(0.74)	23.20	6.08	(1.13)	23.20
MW-25D	X	5.77	138.92	12.08	(4.51)	136.65	10.74	(4.97)	134.36	9.02	(3.25)	134.40	9.16	(3.39)	134.40	9.65	(3.88)	134.40	10.20	(4.43)	134.40
MW-25M	X	5.74	57.60	8.80	(1.25)	55.50	6.10	(0.36)	53.22	5.78	(0.04)	53.20	5.89	(0.15)	53.20	5.74	0.00	53.20	5.64	0.10	53.20
MW-25S	X	5.65	31.68	9.98	(2.16)	29.55	7.90	(2.25)	28.20	6.98	(1.33)	28.20	7.08	(1.43)	28.20	7.19	(1.54)	28.20	7.34	(1.69)	28.20
MW-32M		8.20	56.28	5.94	2.26	56.12	8.40	(0.20)	56.20	8.22	(0.02)	56.20	8.35	(0.15)	56.20	7.76	0.44	56.20	7.23	0.97	56.20
MW-32S		8.44	35.21	6.48	1.96	35.01	8.65	(0.21)	33.02	8.04	0.40	33.00	8.19	0.25	33.00	7.64	0.80	33.00	7.16	1.28	33.00
MW-58D		10.96	134.32	15.02	(4.06)	134.30	15.98	(5.02)	130.72	13.75	(2.79)	130.80	13.87	(2.91)	130.80	13.78	(2.82)	130.80	13.75	(2.79)	130.80
MW-58M		10.90	54.98	7.15	3.75	54.98	7.84	3.06	51.52	6.24	4.66	51.50	6.39	4.51	51.50	6.44	4.46	51.50	6.24	4.66	51.50
MW-58S		10.99	28.16	5.70	5.29	28.16	5.98	5.01	25.50	5.62	5.37	25.50	5.71	5.28	25.50	5.73	5.26	25.50	5.62	5.37	25.50
MW-59D		11.17	139.51	14.31	(3.14)	139.50	15.98	(4.81)	136.02	13.60	(2.43)	136.00	13.71	(2.54)	136.00	12.56	(1.39)	136.00	15.75	(4.58)	136.00
MW-59M		10.96	58.31	8.90	2.06	58.30	9.02	1.94	54.50	8.62	2.34	54.50	8.75	2.21	54.50	9.03	1.93	54.50	9.42	1.54	54.50
MW-59S		10.97	30.00	6.21	4.76	30.00	6.83	4.14	26.50	5.32	5.65	26.50	5.40	5.57	26.50	7.82	3.15	26.50	6.75	4.22	26.50
MW-60D		13.92	138.42	12.80	1.12	38.40	12.88	1.04	136.04	11.02	2.90	136.00	11.13	2.79	136.00	13.03	0.89	136.00	18.56	(4.64)	136.00
MW-60M		13.89	61.51	12.10	1.79	61.50	12.73	1.16	58.02	12.02	1.87	58.20	12.15	1.74	58.20	12.25	1.64	58.20	12.55	1.34	58.20
MW-60S		13.69	32.81	7.42	6.27	32.80	8.21	5.48	30.00	7.84	5.85	30.00	7.96	5.73	30.00	8.26	5.43	30.00	8.62	5.07	30.00
MW-61M		13.02	57.18	11.98	1.04	57.20	12.10	0.92	54.80	10.42	2.60	54.80	10.53	2.49	54.80	10.51	2.51	54.80	10.29	2.73	54.80
MW-61S		12.89	31.14	10.58	2.31	31.15	10.88	2.01	27.50	9.22	3.67	27.50	9.33	3.56	27.50	9.37	3.52	27.50	9.14	3.75	27.50
MW-8M		9.81	56.50	8.04	1.77	56.50	8.60	1.21	52.00	7.80	2.01	52.00	7.96	1.85	52.00	7.88	1.93	52.00	7.72	2.09	52.00
MW-8S		9.78	30.60	8.02	1.76	30.60	8.55	1.23	26.02	7.70	2.08	26.00	7.79	1.99	26.00	7.75	2.03	26.00	7.68	2.10	26.00
NDC-1		14.08	32.06	6.43	7.65	32.05	9.90	4.18	28.00	9.66	4.42	28.00	9.74	4.34	28.00	9.44	4.64	28.00	8.55	5.53	28.00
NDC-2		14.77	30.36	8.04	6.73	30.36	10.80</td														



**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

Initial Readings		3/29/2011	3/29/2011	6/26/2011	6/26/2011	6/26/2011	10/21/2011	10/21/2011	10/21/2011	3/30/2012	3/30/2012	3/30/2012	7/5/2012	7/5/2012	7/5/2012	10/15/2012	10/15/2012	10/15/2012	1/28/2013	
Well ID	Elevation TOC (ft MSL)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	
MW-22D	8.71	11.82	(3.11)	134.04	12.31	(3.60)	134.01	13.49	(4.78)	134.00	13.38	(4.67)	134.20	13.53	(4.82)	134.20	13.50	(4.79)	133.81	
MW-22M	8.08	8.02	0.06	62.85	8.93	(0.85)	62.84	10.68	(2.60)	62.85	7.45	0.63	62.90	7.95	0.13	62.85	7.71	0.37	64.68	
MW-22S	8.81	7.60	1.21	30.12	8.85	(0.04)	30.05	11.01	(2.20)	30.13	5.79	3.02	30.18	8.68	0.13	30.20	7.61	1.20	32.01	
MW-23D	X	6.32	11.02	(4.70)	140.98	7.19	(0.87)	139.73	11.55	(5.23)	141.01	11.55	(5.23)	140.30	11.66	(5.34)	140.30	11.61	(5.29)	143.85
MW-23M	X	6.40	6.88	(0.48)	56.10	6.31	0.09	56.02	7.78	(1.38)	56.10	6.27	0.13	56.18	6.01	0.39	56.12	5.65	0.75	65.3
MW-23S	X	6.09	5.48	0.61	26.82	5.06	1.03	26.80	7.64	(1.55)	26.83	2.73	3.36	26.84	5.53	0.56	26.83	4.40	1.69	33.82
MW-24D	X	4.75	9.21	(4.46)	134.61	9.56	(4.81)	134.26	9.95	(5.20)	134.58	9.85	(5.10)	134.20	10.00	(5.25)	134.25	9.94	(5.19)	138.88
MW-24M	X	4.52	5.00	(0.48)	53.67	4.87	(0.35)	53.67	6.05	(1.53)	53.63	5.34	(0.82)	53.72	4.81	(0.29)	53.70	4.68	(0.16)	61.67
MW-24S	X	4.95	5.50	(0.55)	27.42	6.04	(1.09)	27.45	7.26	(2.31)	27.50	2.22	2.73	27.48	5.01	(0.06)	27.50	4.39	0.56	35.3
MW-25D	X	5.77	10.20	(4.43)	136.78	10.45	(4.68)	136.82	10.82	(5.05)	136.75	10.65	(4.88)	136.60	10.86	(5.09)	136.60	10.41	(4.64)	139.17
MW-25M	X	5.74	6.78	(1.04)	55.62	5.84	(0.10)	55.52	6.88	(1.14)	55.63	6.07	(0.33)	55.57	5.82	(0.08)	55.55	5.42	0.32	61.15
MW-25S	X	5.65	7.56	(1.91)	29.68	7.73	(2.08)	29.83	8.55	(2.90)	29.68	5.47	0.18	29.67	7.34	(1.69)	29.65	7.07	(1.42)	36.92
MW-32M		8.20	5.60	2.60	56.19	7.94	0.26	56.16	9.93	(1.73)	56.20	6.23	1.97	56.25	7.34	0.86	56.23	6.87	1.33	58.5
MW-32S		8.44	6.50	1.94	35.21	8.21	0.23	35.18	10.24	(1.80)	36.26	6.95	1.49	35.21	7.89	0.55	35.40	6.92	1.52	38.94
MW-58D	10.96	14.10	(3.14)	134.46	15.67	(4.71)	134.41	16.15	(5.19)	134.41	17.94	(6.98)	134.38	16.15	(5.19)	134.35	16.03	(5.07)	133.96	
MW-58M	10.90	6.90	4.00	54.97	9.98	0.92	54.93	10.81	0.09	54.99	6.93	3.97	54.99	8.98	1.92	54.80	8.18	2.72	54.4	
MW-58S	10.99	5.98	5.01	28.13	7.92	3.07	28.08	8.72	2.27	28.12	5.42	5.57	28.18	6.96	4.03	28.16	6.58	4.41	28.49	
MW-59D	11.17	7.16	4.01	139.62	16.01	(4.84)	141.03	16.45	(5.28)	139.97	16.28	(5.11)	139.50	16.52	(5.35)	139.52	16.42	(5.25)	138.87	
MW-59M	10.96	9.32	1.64	58.30	10.03	0.93	58.24	12.05	(1.09)	58.29	8.68	2.28	58.42	9.48	1.48	59.39	8.97	1.99	57.16	
MW-59S	10.97	13.82	(2.85)	29.72	6.75	4.22	29.71	8.91	2.06	29.77	5.51	5.46	29.83	6.17	4.80	29.80	5.81	5.16	29.17	
MW-60D	13.92	11.42	2.50	138.61	18.77	(4.85)	138.54	19.21	(5.29)	138.58	19.04	(5.12)	138.50	19.28	(5.36)	138.50	19.17	(5.25)	138.92	
MW-60M	13.89	12.28	1.61	61.17	13.26	0.63	61.11	15.32	(1.43)	63.15	11.61	2.28	61.26	12.67	1.22	61.24	12.16	1.73	62.89	
MW-60S	13.69	8.62	5.07	32.97	8.71	4.98	32.91	10.13	3.56	32.96	8.97	4.72	33.00	8.76	4.93	33.91	8.42	5.27	32.69	
MW-61M	13.02	10.80	2.22	57.22	12.48	0.54	57.17	14.49	(1.47)	57.21	10.70	2.32	57.31	11.86	1.16	57.30	11.33	1.69	57.52	
MW-61S	12.89	9.80	3.09	31.11	10.98	1.91	31.03	12.74	0.15	31.11	8.20	4.69	31.03	10.01	2.88	31.00	9.79	3.10	30.09	
MW-8M	9.81	8.02	1.79	56.40	9.71	0.10	56.35	11.88	(2.07)	56.40	6.28	3.53	56.47	8.97	0.84	56.48	7.72	2.09	57.71	
MW-8S	9.78	7.84	1.94	30.52	10.13	(0.35)	30.45	11.30	(1.52)	30.53	5.77	4.01	30.61	8.73	1.05	30.60	7.57	2.21	31.78	
NDC-1	14.08	9.80	4.28	32.11	8.81	5.27	32.04	11.34	2.74	32.09	8.84	5.24	32.04	8.98	5.10	32.00	8.85	5.23	30.88	
NDC-2	14.77	10.34	4.43	34.39	9.71	5.06	34.35	11.10	3.67	34.39	9.36	5.41	34.34	9.51	5.26	34.32	9.23	5.54	33.07	

Note:

1. "X" Indicates monitoring wells that were converted to flush mounts.

2. Data collected prior to January 2013 was provided to ESE by Project Navigator.

3. "NG" Indicates monitoring wells that were not gauged.

4. "NP" Indicates monitoring well was not present on the date gauging took place.

5. "NA" Indicates TOC Elevation has not been surveyed yet.

6. "NM" Indicates monitor well was not measured on the date gauging took place.

**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

Initial Readings		1/28/2013	1/28/2013	4/23/2013	4/23/2013	4/23/2013	7/24/2013	7/24/2013	7/24/2013	10/24/2013	10/24/2013	10/24/2013	12/16/2013	12/16/2013	12/16/2013	3/19/2014	3/19/2014	3/19/2014	7/10/2014
Well ID	Elevation TOC (ft MSL)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)
MW-22D	8.71	13.21	(4.50)	133.99	13.29	(4.58)	134.02	13.54	(4.83)	134.07	13.65	(4.94)	135.1	13.4	(4.69)	135.07	13.26	(4.55)	134.09
MW-22M	8.08	7.21	0.87	62.86	7.27	0.81	62.88	7.78	0.30	62.85	8.37	(0.29)	62.85	7.78	0.30	62.85	7.46	0.62	62.85
MW-22S	8.81	6.19	2.62	30.14	6.87	1.94	30.14	8.63	0.18	30.14	8.19	0.62	30.13	7.03	1.78	30.14	6.63	2.18	30.14
MW-23D	X 6.32	11.32	(5.00)	141.03	11.35	(5.03)	141.02	11.62	(5.30)	141.02	11.47	(5.15)	142.08	11.45	(5.13)	142.11	11.34	(5.02)	142.10
MW-23M	X 6.40	5.49	0.91	55.81	5.24	1.16	55.82	6	0.40	55.81	5.88	0.52	55.82	5.91	0.49	55.73	5.53	0.87	55.74
MW-23S	X 6.09	2.57	3.52	26.85	3.32	2.77	26.88	5.44	0.65	26.89	5.21	0.88	26.79	4.32	1.77	26.84	2.88	3.21	26.84
MW-24D	X 4.75	9.75	(5.00)	134.52	9.74	(4.99)	134.55	9.97	(5.22)	134.5	9.71	(4.96)	135.95	9.82	(5.07)	135.95	9.69	(4.94)	134.47
MW-24M	X 4.52	4.61	(0.09)	53.64	4.36	0.16	53.64	5	(0.48)	53.68	4.86	(0.34)	53.65	4.9	(0.38)	53.64	4.37	0.15	53.66
MW-24S	X 4.95	2.5	2.45	27.46	3.78	1.17	27.56	4.99	(0.04)	27.56	4.82	0.13	27.4	4.9	0.05	27.54	3.36	1.59	27.49
MW-25D	X 5.77	10.55	(4.78)	136.78	10.65	(4.88)	136.76	10.83	(5.06)	136.69	10.69	(4.92)	138.76	10.65	(4.88)	138.78	10.51	(4.74)	136.73
MW-25M	X 5.74	5.14	0.60	55.64	5.53	0.21	55.68	5.81	(0.07)	55.7	5.66	0.08	55.61	5.64	0.10	55.63	5.30	0.44	55.68
MW-25S	X 5.65	5.89	(0.24)	29.69	6.6	(0.95)	29.68	7.13	(1.48)	29.67	7.04	(1.39)	29.65	7.23	(1.58)	29.68	6.36	(0.71)	29.67
MW-32M	8.20	5.82	2.38	56.23	5.95	2.25	56.25	8.12	0.08	56.24	7.94	0.26	56.24	7.01	1.19	56.22	10.92	(2.72)	56.23
MW-32S	8.44	6	2.44	35.26	5.38	3.06	35.19	7.96	0.48	35.21	7.12	1.32	35.24	7.61	0.83	35.26	7.03	1.41	35.24
MW-58D	10.96	15.86	(4.90)	134.42	15.84	(4.88)	134.42	16.12	(5.16)	134.38	15.92	(4.96)	134.52	15.92	(4.96)	134.59	15.87	(4.91)	134.42
MW-58M	10.90	6.93	3.97	54.99	7.42	3.48	54.99	8.79	2.11	54.96	8.53	2.37	55.06	7.76	3.14	55.01	7.10	3.80	54.98
MW-58S	10.99	5.79	5.20	28.13	6.03	4.96	28.12	6.54	4.45	28.14	6.43	4.56	28.13	6.29	4.70	28.04	5.70	5.29	28.13
MW-59D	11.17	16.18	(5.01)	139.59	16.18	(5.01)	139.57	16.47	(5.30)	139.46	16.36	(5.19)	139.54	16.28	(5.11)	139.49	16.23	(5.06)	139.50
MW-59M	10.96	8.23	2.73	58.28	8.24	2.72	58.31	10.16	0.80	58.34	9.98	0.98	58.3	9.21	1.75	58.28	8.66	2.30	58.30
MW-59S	10.97	4.45	6.52	29.77	4.78	6.19	29.8	6.72	4.25	29.77	6.53	4.44	29.79	5.77	5.20	29.80	4.73	6.24	29.80
MW-60D	13.92	18.96	(5.04)	138.57	18.95	(5.03)	138.54	19.21	(5.29)	138.47	19.13	(5.21)	138.46	19.07	(5.15)	138.52	18.98	(5.06)	138.31
MW-60M	13.89	11.21	2.68	60.17	11.31	2.58	61.19	13.38	0.51	61.21	13.24	0.65	61.18	12.34	1.55	61.18	11.79	2.10	61.19
MW-60S	13.69	7.63	6.06	32.99	7.8	5.89	33.01	8.77	4.92	32.96	8.63	5.06	33.04	8.68	5.01	33.00	8.12	5.57	33.03
MW-61M	13.02	10.32	2.70	57.21	10.43	2.59	57.23	12.64	0.38	57.19	12.47	0.55	56.22	11.48	1.54	57.20	10.90	2.12	57.19
MW-61S	12.89	7.53	5.36	31.11	8.23	4.66	31.1	10.73	2.16	31.12	10.59	2.30	30.09	10.8	2.09	31.12	8.69	4.20	30.10
MW-8M	9.81	6.38	3.43	56.4	6.99	2.82	56.42	8.61	1.20	56.41	8.39	1.42	56.42	7.29	2.52	56.40	6.58	3.23	56.42
MW-8S	9.78	5.85	3.93	30.55	6.54	3.24	30.56	8.86	0.92	30.53	8.74	1.04	30.55	6.84	2.94	30.53	5.78	4.00	30.56
NDC-1	14.08	8.06	6.02	32.1	8.06	6.02	32.11	8.67	5.41	32.14	8.46	5.62	32.03	9.07	5.01	32.04	8.74	5.34	32.07
NDC-2	14.77	8.75	6.02	34.39	8.69	6.08	34.37	9.28	5.49	34.33	9.13	5.64	34.58	9.85	4.92	34.57	9.51	5.26	34.57

Note:

1. "X" Indicates monitoring wells that were converted to flush mounts.

2. Data collected prior to January 2013 was provided to ESE by Project Navigator.

3. "NG" Indicates monitoring wells that were not gauged.

4. "NP" Indicates monitoring well was not present on the date gauging took place.

5. "NA" Indicates TOC Elevation has not been surveyed yet.

6. "NM" Indicates monitor well was not measured on the date gauging took place.

**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

Initial Readings		7/10/2014	7/10/2014	9/24/2014	9/24/2014	9/24/2014	12/9/2014	12/9/2014	12/9/2014	3/13/2015	3/13/2015	3/13/2015	6/23/2015	6/23/2015	6/23/2015	9/30/2015	9/30/2015	9/30/2015	
Well ID	Elevation TOC (ft MSL)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	
MW-22D	8.71	13.35	(4.64)	134.14	13.22	(4.51)	135.55	13.20	(4.49)	134.02	13.06	(4.35)	134.18	12.98	(4.27)	134.08	13.84	(5.13)	
MW-22M	8.08	8.68	(0.60)	62.87	8.35	(0.27)	62.87	7.85	0.23	62.90	7.10	0.98	62.88	7.09	0.99	62.70	7.25	0.83	
MW-22S	8.81	8.75	0.06	30.10	6.55	2.26	30.09	6.31	2.50	30.09	4.85	3.96	NG	NG	NG	NG	NG	NG	
MW-23D	X	6.32	11.64	(5.32)	141.51	12.38	(6.06)	140.94	11.30	(4.98)	140.66	11.16	(4.84)	140.74	11.05	(4.55)	140.49	10.91	(4.41)
MW-23M	X	6.40	6.22	0.18	55.74	6.29	0.11	55.69	5.99	0.41	55.68	5.08	1.32	55.56	4.88	1.44	55.31	5.25	1.07
MW-23S	X	6.09	5.64	0.45	26.84	3.42	2.67	26.81	3.93	2.16	26.81	1.54	4.55	26.96	2.92	3.33	26.90	2.63	3.62
MW-24D	X	4.75	9.88	(5.13)	134.31	9.72	(4.97)	134.41	10.68	(5.93)	134.54	9.51	(4.76)	134.47	9.17	(4.53)	134.40	9.02	(4.38)
MW-24M	X	4.52	5.26	(0.74)	53.59	5.24	(0.72)	NG	NG	NG	NG	NG	NG	55.44	3.72	0.84	55.31	4.01	0.55
MW-24S	X	4.95	5.94	(0.99)	27.50	3.32	1.63	27.47	4.20	0.75	27.49	1.33	3.62	27.23	2.52	2.18	27.08	1.35	3.35
MW-25D	X	5.77	10.26	(4.49)	136.91	10.60	(4.83)	136.76	10.52	(4.75)	136.82	10.38	(4.61)	136.90	10.28	(4.40)	136.72	10.14	(4.26)
MW-25M	X	5.74	6.36	(0.62)	55.68	6.36	(0.62)	55.67	5.56	0.18	55.44	5.25	0.49	55.59	4.57	1.29	55.35	5.48	0.38
MW-25S	X	5.65	8.04	(2.39)	29.67	6.05	(0.40)	29.64	6.61	(0.96)	29.59	3.80	1.85	29.66	5.69	0.05	29.52	5.19	0.55
MW-32M		8.20	8.38	(0.18)	56.20	7.06	1.14	56.23	6.62	1.58	56.26	5.61	2.59	56.29	5.70	2.50	56.15	5.56	2.64
MW-32S		8.44	8.69	(0.25)	33.25	7.51	0.93	35.16	6.88	1.56	35.18	5.11	3.33	35.17	5.82	2.62	35.06	5.68	2.76
MW-58D	10.96	16.00	(5.04)	134.37	15.85	(4.89)	134.44	15.84	(4.88)	134.45	15.71	(4.75)	134.47	15.59	(4.63)	134.44	15.48	(4.52)	
MW-58M	10.90	9.19	1.71	54.97	7.34	3.56	54.98	7.18	3.72	54.98	6.69	4.21	54.74	7.11	3.79	54.56	6.92	3.98	
MW-58S	10.99	6.83	4.16	28.13	5.69	5.30	28.09	5.76	5.23	28.08	4.88	6.11	27.91	5.75	5.24	27.78	5.25	5.74	
MW-59D	11.17	16.35	(5.18)	139.46	16.17	(5.00)	139.63	16.17	(5.00)	139.61	16.02	(4.85)	135.23	15.92	(4.57)	135.18	15.81	(4.46)	
MW-59M	10.96	10.37	0.59	58.29	9.78	1.18	58.28	8.94	2.02	58.28	8.13	2.83	58.52	7.91	3.30	58.27	6.92	4.29	
MW-59S	10.97	6.33	4.64	29.80	5.01	5.96	29.79	4.88	6.09	29.75	2.99	7.98	29.73	3.98	6.99	29.55	5.25	5.72	
MW-60D	13.92	19.12	(5.20)	138.43	18.91	(4.99)	138.97	18.91	(4.99)	138.67	18.78	(4.86)	138.45	18.69	(4.77)	138.41	18.56	(4.64)	
MW-60M	13.89	13.66	0.23	61.18	12.93	0.96	61.22	12.06	1.83	61.18	10.94	2.95	61.17	11.11	2.78	60.92	11.06	2.83	
MW-60S	13.69	8.71	4.98	33.03	8.30	5.39	33.00	8.02	5.67	32.96	6.52	7.17	32.92	7.13	6.56	32.73	6.64	7.05	
MW-61M	13.02	12.93	0.09	57.21	12.02	1.00	57.22	11.22	1.80	57.25	9.98	3.04	57.20	10.17	2.85	57.03	10.13	2.89	
MW-61S	12.89	11.81	1.08	30.73	9.96	2.93	31.09	9.95	2.94	31.11	5.62	7.27	31.14	7.96	4.93	30.89	7.02	5.87	
MW-8M	9.81	9.17	0.64	56.42	6.85	2.96	56.42	6.69	3.12	56.41	5.54	4.27	56.41	6.69	3.12	56.31	6.33	3.48	
MW-8S	9.78	7.02	2.76	30.55	4.97	4.81	30.55	6.13	3.65	30.48	4.21	5.57	30.47	6.25	3.53	30.46	6.02	3.76	
NDC-1	14.08	9.08	5.00	32.05	8.59	5.49	32.04	8.54	5.54	31.95	7.41	6.67	31.93	7.38	6.70	31.71	6.84	7.24	
NDC-2	14.77	9.90	4.87	34.41	9.46	5.31	34.38	9.51	5.26	34.33	9.33	5.44	34.30	8.18	6.59	34.06	8.02	6.75	

Note:

1. "X" Indicates monitoring wells that were converted to flush mounts.

2. Data collected prior to January 2013 was provided to ESE by Project Navigator.

3. "NG" Indicates monitoring wells that were not gauged.

4. "NP" Indicates monitoring well was not present on the date gauging took place.

5. "NA" Indicates TOC Elevation has not been surveyed yet.

6. "NM" Indicates monitor well was not measured on the date gauging took place.

**Attachment 3**  
**Groundwater Gauging Data**  
**Tex-Tin Superfund Site OU-1**  
**Texas City, Texas**

Initial Readings		12/16/2015	12/16/2015	12/16/2015	4/5/2016	4/5/2016	4/5/2016	7/7/2016	7/7/2016	7/7/2016	11/28/2016	11/28/2016	11/28/2016	2/9/2017	2/9/2017	2/9/2017
Well ID	Elevation TOC (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)	Total Depth (ft TOC)	Depth to Water (ft TOC)	Water Elevation (ft MSL)
MW-22D	8.71	134.15	12.62	(3.91)	135.56	12.78	(4.07)	136.05	12.65	(3.94)	134.80	12.71	(4.00)	136.58	12.50	(3.79)
MW-22M	8.08	62.66	6.66	1.42	62.91	6.92	1.16	64.00	7.24	0.84	63.03	6.70	1.38	64.28	6.59	1.49
MW-22S	8.81	30.01	5.86	2.95	30.05	7.61	1.20	30.69	7.91	0.90	30.25	6.85	1.96	30.84	6.76	2.05
MW-23D	X 6.32	140.44	10.82	(4.32)	140.84	10.90	(4.40)	142.05	10.8	(4.30)	140.91	10.74	(4.24)	142.00	10.62	(4.12)
MW-23M	X 6.40	55.34	4.51	1.81	55.59	4.63	1.69	55.70	4.71	1.61	55.50	3.42	2.90	56.75	3.98	2.34
MW-23S	X 6.09	26.89	2.11	4.14	26.90	4.09	2.16	26.88	3.38	2.87	26.90	4.43	1.82	27.32	3.77	2.48
MW-24D	X 4.75	134.45	8.93	(4.29)	134.46	9.00	(4.36)	136.41	8.82	(4.18)	134.84	8.79	(4.15)	136.76	8.68	(4.04)
MW-24M	X 4.52	55.29	3.73	0.83	55.23	3.06	1.50	53.39	3.61	0.95	54.93	2.01	2.55	53.42	2.77	1.79
MW-24S	X 4.95	27.09	1.39	3.31	27.57	3.92	0.78	27.66	3.4	1.30	27.33	4.31	0.39	27.22	3.49	1.21
MW-25D	X 5.77	136.67	10.05	(4.17)	136.70	10.09	(4.21)	138.40	9.97	(4.09)	137.08	9.89	(4.01)	139.05	9.80	(3.92)
MW-25M	X 5.74	55.38	5.00	0.86	55.57	4.50	1.36	56.43	4.44	1.42	55.67	3.79	2.07	55.55	4.29	1.57
MW-25S	X 5.65	29.49	4.51	1.23	29.54	6.65	(0.91)	29.77	6.68	(0.94)	29.60	6.75	(1.01)	24.72	6.28	(0.54)
MW-32M	8.20	56.18	5.12	3.08	56.14	5.57	2.63	57.42	6.36	1.84	56.44	5.75	2.45	57.42	6.36	1.84
MW-32S	8.44	35.03	5.40	3.04	35.08	6.22	2.22	35.21	6.63	1.81	35.11	6.52	1.92	35.16	5.41	3.03
MW-58D	10.96	134.36	15.21	(4.25)	134.49	15.33	(4.37)	136.54	15.16	(4.20)	134.86	15.36	(4.40)	22.80	14.97	(4.01)
MW-58M	10.90	54.59	6.55	4.35	55.01	7.69	3.21	55.02	8.38	2.52	54.78	8.09	2.81	56.20	7.24	3.66
MW-58S	10.99	27.75	5.06	5.93	28.00	6.38	4.61	28.55	8.49	2.50	28.00	6.19	4.80	27.70	6.03	4.96
MW-59D	11.17	135.26	15.59	(4.24)	139.64	15.69	(4.34)	144.70	15.53	(4.18)	138.00	15.81	(4.46)	142.30	15.36	(4.01)
MW-59M	10.96	58.24	7.44	3.77	58.37	7.81	3.40	58.32	8.1	3.11	58.34	7.76	3.45	59.15	7.35	3.86
MW-59S	10.97	29.58	3.22	7.75	29.78	4.58	6.39	29.61	9.56	1.41	29.65	4.66	6.31	30.10	4.12	6.85
MW-60D	13.92	138.32	18.36	(4.44)	138.92	18.45	(4.53)	140.95	18.32	(4.40)	139.01	18.59	(4.67)	141.50	18.18	(4.26)
MW-60M	13.89	60.98	10.57	3.32	61.13	10.90	2.99	62.22	11.5	2.39	61.28	11.01	2.88	62.40	10.41	3.48
MW-60S	13.69	32.70	6.55	7.14	33.03	7.32	6.37	33.35	7.61	6.08	32.95	7.43	6.26	33.45	6.98	6.71
MW-61M	13.02	57.08	9.67	3.35	57.20	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-61S	12.89	30.85	6.01	6.88	31.06	7.76	5.13	31.12	8.36	4.53	31.01	8.90	3.99	31.11	7.26	5.63
MW-8M	9.81	56.34	5.86	3.95	56.38	7.33	2.48	56.42	8.26	1.55	56.37	7.75	2.06	57.70	6.83	2.98
MW-8S	9.78	30.43	5.22	4.56	30.46	7.14	2.64	30.53	7.95	1.83	30.47	7.16	2.62	30.43	6.74	3.04
NDC-1	14.08	32.00	6.85	7.23	32.09	7.46	6.62	32.41	7.22	6.86	32.03	7.29	6.79	32.09	6.90	7.18
NDC-2	14.77	34.40	8.02	6.75	34.48	8.52	6.25	34.40	8.29	6.48	34.33	8.32	6.45	34.42	7.98	6.79

Note:

1. "X" Indicates monitoring wells that were converted to flush mounts.
2. Data collected prior to January 2013 was provided to ESE by Project Navigator.
3. "NG" Indicates monitoring wells that were not gauged.
4. "NP" Indicates monitoring well was not present on the date gauging took place.
5. "NA" Indicates TOC Elevation has not been surveyed yet.
6. "NM" Indicates monitor well was not measured on the date gauging took place.

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**ATTACHMENT 4**  
**ANALYTICAL RESULTS**



## Case Narrative

**Lab No: 20170112**

This report contains the analytical results for the 21 sample(s) received under chain of custody by ESC Lab Sciences on 2/14/2017 10:27:37 AM. These samples are associated with your 15-0342 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### **Observations / Nonconformances**

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L889892

Samples -20 and -21, for Ra 226, were analyzed by method SM7500 RA B due to high solid concentrations.



Client : ESE Partners, LLC  
 Client Project : 15-0342  
 Lab Number : 20170112  
 Date Reported : 03/17/17  
 Date Received : 02/14/17  
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## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	<b>20170112-01</b>							
<b>Client ID</b>	<b>MW-8S</b>							
<b>Date Sampled</b>	<b>2/8/2017 1:58:00 PM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	11.3 +/- 2.4	3.8	pCi/l		03/01/17	03/04/17	RE
Radium-226	SM 7500 Ra B M*	1.76 +/- 0.560	0.524	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	-0.116 +/- 0.505	0.596	pCi/l		03/01/17	03/08/17	JR
<b>Lab ID</b>	<b>20170112-02</b>							
<b>Client ID</b>	<b>MW-32S</b>							
<b>Date Sampled</b>	<b>2/9/2017 11:07:00 AM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	78.3 +/- 5.8	7.6	pCi/l		03/01/17	03/04/17	RE
Radium-226	SM 7500 Ra B M*	2.15 +/- 0.836	0.385	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	19.8 +/- 0.687	1.03	pCi/l		03/01/17	03/08/17	JR
<b>Lab ID</b>	<b>20170112-03</b>							
<b>Client ID</b>	<b>MW-61S</b>							
<b>Date Sampled</b>	<b>2/8/2017 3:13:00 PM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	16.9 +/- 2.6	4.0	pCi/l		03/01/17	03/04/17	RE
Radium-226	SM 7500 Ra B M*	0.635 +/- 0.368	0.248	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	2.14 +/- 0.488	0.646	pCi/l		03/01/17	03/11/17	JR
<b>Lab ID</b>	<b>20170112-04</b>							
<b>Client ID</b>	<b>MW-22S</b>							
<b>Date Sampled</b>	<b>2/8/2017 2:42:00 PM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	352 +/- 17.8	22.9	pCi/l		03/01/17	03/04/17	RE
Radium-226	SM 7500 Ra B M*	1.28 +/- 0.470	0.205	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	19.5 +/- 0.732	0.738	pCi/l		03/01/17	03/11/17	JR



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 Client Project : 15-0342  
 Lab Number : 20170112  
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## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	: 20170112-05							
<b>Client ID</b>	: MW-22M							
<b>Date Sampled</b>	: 2/8/2017 2:03:00 PM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	29.7 +/- 2.8	4.0	pCi/l	03/01/17	03/04/17	RE	
Radium-226	SM 7500 Ra B M*	0.809 +/- 0.621	0.752	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	1.80 +/- 0.603	0.700	pCi/l	03/01/17	03/11/17	JR	
<b>Lab ID</b>	: 20170112-06							
<b>Client ID</b>	: MW-22D							
<b>Date Sampled</b>	: 2/8/2017 1:40:00 PM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	9.4 +/- 2.4	3.8	pCi/l	03/01/17	03/04/17	RE	
Radium-226	SM 7500 Ra B M*	0.415 +/- 0.333	0.370	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	-0.396 +/- 0.579	0.767	pCi/l	03/01/17	03/11/17	JR	
<b>Lab ID</b>	: 20170112-07							
<b>Client ID</b>	: MW-23S							
<b>Date Sampled</b>	: 2/8/2017 11:23:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	32.5 +/- 10.1	16.2	pCi/l	03/10/17	03/11/17	RE	
Radium-226	SM 7500 Ra B M*	3.08 +/- 0.948	0.500	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	13.1 +/- 0.689	0.805	pCi/l	03/01/17	03/11/17	JR	
<b>Lab ID</b>	: 20170112-08							
<b>Client ID</b>	: MW-23M							
<b>Date Sampled</b>	: 2/8/2017 10:38:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	166 +/- 18.2	27.1	pCi/l	03/01/17	03/05/17	RE	
Radium-226	SM 7500 Ra B M*	1.04 +/- 0.461	0.307	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	1.95 +/- 0.498	0.538	pCi/l	03/01/17	03/11/17	JR	



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 Client Project : 15-0342  
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## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	: 20170112-09							
<b>Client ID</b>	: MW-23D							
<b>Date Sampled</b>	: 2/8/2017 10:02:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	13.2 +/- 2.5	3.8	pCi/l	03/01/17	03/05/17	RE	
Radium-226	SM 7500 Ra B M*	0.829 +/- 0.345	0.228	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	0.129 +/- 0.542	0.674	pCi/l	03/01/17	03/11/17	JR	
<b>Lab ID</b>	: 20170112-10							
<b>Client ID</b>	: MW-24S							
<b>Date Sampled</b>	: 2/7/2017 3:36:00 PM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	3.5 +/- 2.3	3.7	pCi/l	03/01/17	03/05/17	RE	
Radium-226	SM 7500 Ra B M*	0.216 +/- 0.181	0.171	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	1.28 +/- 0.452	0.504	pCi/l	03/01/17	03/11/17	JR	
<b>Lab ID</b>	: 20170112-11							
<b>Client ID</b>	: MW-24M							
<b>Date Sampled</b>	: 2/8/2017 8:52:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	33.5 +/- 2.5	3.3	pCi/l	03/01/17	03/05/17	RE	
Radium-226	SM 7500 Ra B M*	2.02 +/- 0.635	0.269	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	4.04 +/- 0.521	0.527	pCi/l	03/01/17	03/11/17	JR	
<b>Lab ID</b>	: 20170112-12							
<b>Client ID</b>	: MW-24D							
<b>Date Sampled</b>	: 2/7/2017 3:25:00 PM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	5.7 +/- 2.3	3.7	pCi/l	03/01/17	03/05/17	RE	
Radium-226	SM 7500 Ra B M*	23.4 +/- 9.83	5.47	pCi/l	03/03/17	03/16/17	SD	
Radium-228	EPA 904*/9320*	1.10 +/- 0.428	0.507	pCi/l	03/01/17	03/11/17	JR	



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 Client Project : 15-0342  
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## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	: 20170112-13							
<b>Client ID</b>	: MW-25S							
<b>Date Sampled</b>	: 2/8/2017 10:55:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	93.6 +/- 10.7	15.5	pCi/l		03/10/17	03/11/17	RE
Radium-226	SM 7500 Ra B M*	20.3 +/- 2.48	0.489	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	45.9 +/- 1.03	0.779	pCi/l		03/01/17	03/11/17	JR
<b>Lab ID</b>	: 20170112-14							
<b>Client ID</b>	: MW-25M							
<b>Date Sampled</b>	: 2/8/2017 11:10:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	28.6 +/- 2.5	3.5	pCi/l		03/01/17	03/05/17	RE
Radium-226	SM 7500 Ra B M*	0.728 +/- 0.301	0.147	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	4.66 +/- 0.546	0.538	pCi/l		03/01/17	03/11/17	JR
<b>Lab ID</b>	: 20170112-15							
<b>Client ID</b>	: MW-25D							
<b>Date Sampled</b>	: 2/8/2017 10:32:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	9.8 +/- 2.3	3.6	pCi/l		03/01/17	03/06/17	RE
Radium-226	SM 7500 Ra B M*	0.079 +/- 0.238	0.379	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	0.461 +/- 0.417	0.527	pCi/l		03/01/17	03/11/17	JR
<b>Lab ID</b>	: 20170112-16							
<b>Client ID</b>	: FD-01							
<b>Date Sampled</b>	: 2/8/2017							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	10.7 +/- 2.4	3.8	pCi/l		03/01/17	03/06/17	RE
Radium-226	SM 7500 Ra B M*	0.145 +/- 0.220	0.324	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	-0.267 +/- 0.417	0.546	pCi/l		03/01/17	03/11/17	JR



Client : ESE Partners, LLC  
 Client Project : 15-0342  
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## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	<b>20170112-17</b>							
<b>Client ID</b>	<b>FD-02</b>							
<b>Date Sampled</b>	<b>2/8/2017</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	25.4 +/- 9.9	16.0	pCi/l		03/10/17	03/11/17	RE
Radium-226	SM 7500 Ra B M*	0.219 +/- 0.282	0.401	pCi/l		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	2.80 +/- 0.505	0.477	pCi/l		03/01/17	03/11/17	JR
<b>Lab ID</b>	<b>20170112-18</b>							
<b>Client ID</b>	<b>MS</b>							
<b>Date Sampled</b>	<b>2/8/2017 2:15:00 PM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	100		% Rec		03/01/17	03/10/17	RE
Radium-226	SM 7500 Ra B M*	93.9		% Rec		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	80.0		% Rec		03/01/17	03/12/17	JR
<b>Lab ID</b>	<b>20170112-19</b>							
<b>Client ID</b>	<b>MSD</b>							
<b>Date Sampled</b>	<b>2/8/2017 2:15:00 PM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	2.8		RPD		03/01/17	03/11/17	RE
Radium-226	SM 7500 Ra B M*	4.8		RPD		03/03/17	03/16/17	SD
Radium-228	EPA 904*/9320*	1.21		RPD		03/01/17	03/12/17	JR
<b>Lab ID</b>	<b>20170112-20</b>							
<b>Client ID</b>	<b>NDC-1</b>							
<b>Date Sampled</b>	<b>2/8/2017 4:06:00 PM</b>							
<b>Matrix</b>	<b>NPW</b>							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	594 +/- 18.3	17.2	pCi/l		03/10/17	03/11/17	RE
Radium-226	SM 7500 Ra B *	71.7 +/- 8.82	4.39	pCi/l		03/16/17	03/17/17	RT
Radium-228	EPA 904*/9320*	166 +/- 1.78	0.672	pCi/l		03/01/17	03/12/17	JR



Client : ESE Partners, LLC  
 Client Project : 15-0342  
 Lab Number : 20170112  
 Date Reported : 03/17/17  
 Date Received : 02/14/17  
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## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	: 20170112-21							
<b>Client ID</b>	: NDC-2							
<b>Date Sampled</b>	: 2/9/2017 9:08:00 AM							
<b>Matrix</b>	: NPW							

### Radiochemical Analyses

Gross Alpha	LS	243 +/- 13.4	16.1	pCi/l	03/01/17	03/11/17	RE
Radium-226	SM 7500 Ra B*	35.2 +/- 6.26	4.39	pCi/l	03/16/17	03/17/17	RT
Radium-228	EPA 904*/9320*	95.1 +/- 1.20	1.07	pCi/l	03/01/17	03/12/17	JR

## QC Report

Parameter	Blank	LCS %REC	LCSD %REC	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	Batch ID
Gross Alpha	-1.41	94.4		9.0	0.821	100.0	97.5	2.8
Radium-226	0.327	109.0		NC	0.132	114.0		R1196B
Radium-226	0.045	114.0		NC	0.707	93.9	89.2	4.8
Radium-228	-0.168	86.0		NC	0.133	80.0	81.5	1.2

Lab Approval:

Ron Eidson  
Director of Radiochemistry

ESE Partners, 19416 Park Row Ste 120, Houston TX			Billing Information:			Pres Chk	Analysis / Container / Preservative										Chain of Custody	Page 1 of 2
Report to: Aaron Munsart, Aaron Varnell			Email To: amunsart@esepartners.com															
Project Description: 15-0342 Tex Tin Services			City/State Collected: TX															
Phone: 281-501-6100		Client Project #		Lab Project #														
Fax:		15-0342																
Collected by (print): Aaron Varnell, Aaron Munsart			Site/Facility ID #		P.O. #													
Collected by (signature):			Rush? (Lab MUST Be Notified)		Quote #													
			<input type="checkbox"/> Same Day	<input type="checkbox"/> Five Day														
			<input type="checkbox"/> Next Day	<input type="checkbox"/> 5 Day (Rad Only)														
			<input type="checkbox"/> Two Day	<input checked="" type="checkbox"/> 10 Day (Rad Only)			Date Results Needed	No. of Cntrs										
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>																		
	Sample ID	Comp/Grab	Matrix *	Depth	Date	Time												
1	MW-8S		GW		Feb 8, 2017	1358		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	MW-32S		GW		Feb 9, 2017	1107		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	MW-61S		GW		Feb 8, 2017	1513		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	MW-22S		GW		Feb 8, 2017	1442		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	MW-22M		GW		Feb 8, 2017	1403		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	MW-22D		GW		Feb 8, 2017	1340		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	MW-23S		GW		Feb 8, 2017	1123		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	MW-23M		GW		Feb 8, 2017	1038		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	MW-23D		GW		Feb 8, 2017	1002		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	MW-24S		GW		Feb 7, 2017	1536		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other <input type="checkbox"/>			Remarks:			<input type="checkbox"/> pH <input type="checkbox"/> Temp <input type="checkbox"/> <input type="checkbox"/> Flow <input type="checkbox"/> Other <input type="checkbox"/>			Sample Receipt Checklist COC Seal Present/Intact: <input type="checkbox"/> MP <input type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N									
Relinquished by : (Signature)			Date:	Time:	Received by: (Signature)			Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> HCl / MeOH TBR	Temp: <i>Amb</i> °C Bottles Received: <i>L-2020</i>						If preservation required by Login: Date/Time			
Relinquished by : (Signature)			Date:	Time:	Received by: (Signature)			Date: <i>2/14/17</i> Time: <i>1037</i>						Hold: <i>L-2</i>	Condition: <i>NCF / OK</i>			
Relinquished by : (Signature)			Date:	Time:	Received for lab by: (Signature)													

Billing Information:			Pres Chk	Analysis / Container / Preservative								Chain of Custody	Page <b>2</b> of <b>2</b>	
ESE Partners, 19416 Park Row Ste 120, Houston TX														
Report to: <b>Aaron Munsart, Aaron Varnell</b>			Email To: <b>amunsart@esepartners.com</b>											
Project Description: <b>15-0342 Tex Tin Services</b>			City/State Collected: <b>TX</b>											
Phone: <b>281-501-6100</b>	Client Project #	Lab Project #												
Fax: <b>15-0342</b>														
Collected by (print): <b>Aaron Varnell, Aaron Munsart</b>	Site/Facility ID #	P.O. #												
Collected by (signature):	Rush? (Lab MUST Be Notified)	Quote #												
Immediately Packed on Ice N <input type="checkbox"/> Y <input checked="" type="checkbox"/>	<input type="checkbox"/> Same Day <input type="checkbox"/> Next Day <input type="checkbox"/> Two Day <input type="checkbox"/> Three Day	<input type="checkbox"/> Five Day <input type="checkbox"/> 5 Day (Rad Only) <input checked="" type="checkbox"/> 10 Day (Rad Only)	Date Results Needed	No. of Cntrs										
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time									
11 MW-24M		GW		Feb 8, 2017	0852	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12 MW-24D		GW		Feb 7, 2017	1525	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
13 MW-25S		GW		Feb 8, 2017	1055	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
14 MW-25M		GW		Feb 8, 2017	1110	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
15 MW-25D		GW		Feb 8, 2017	1032	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
16 FD-01		GW		Feb 8, 2017		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
17 FD-02		GW		Feb 8, 2017		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
18/19/20/21 MS/MSD		GW		Feb 8, 2017		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
20 NDC-1		GW		Feb 8, 2017	1606	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
21 NDC-2		GW		Feb 9, 2017	0908	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other <input type="checkbox"/>			Remarks:			pH <input type="checkbox"/>	Temp <input type="checkbox"/>	Flow <input type="checkbox"/>	Other <input type="checkbox"/>	Sample Receipt Checklist				
										COC Seal Present/Intact: <input type="checkbox"/> Y <input type="checkbox"/> N				
										COC Signed/Accurate: <input type="checkbox"/> Y <input type="checkbox"/> N				
										Bottles arrive intact: <input type="checkbox"/> Y <input type="checkbox"/> N				
										Correct bottles used: <input type="checkbox"/> Y <input type="checkbox"/> N				
										Sufficient volume sent: <input type="checkbox"/> Y <input type="checkbox"/> N If Applicable				
										VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N				
										Preservation Correct/Checked: <input type="checkbox"/> Y <input type="checkbox"/> N				
Samples returned via: UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>			Tracking #											
Relinquished by : (Signature)			Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> HCl / MeOH TBR								
Relinquished by : (Signature)			Date:	Time:	Received by: (Signature)	Temp: <i>Hub</i> °C Bottles Received: <i>23</i>	If preservation required by Login: Date/Time							
Relinquished by : (Signature)			Date:	Time:	Received for lab by: (Signature)	Date: <i>2/14/17</i> Time: <i>1027</i>	Hold: _____ Condition: NCF / OK							

# SAMPLE LOGIN

Date Received: 2/14/2017 10:27:3

Lab Number: 20170112

Due: 3/14/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170112-01 A	MW-8S	NPW	02/08/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								
20170112-02 A	MW-32S	NPW	02/09/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								
20170112-03 A	MW-61S	NPW	02/08/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								
20170112-04 A	MW-22S	NPW	02/08/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								
20170112-05 A	MW-22M	NPW	02/08/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								
20170112-06 A	MW-22D	NPW	02/08/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								
20170112-07 A	MW-23S	NPW	02/08/17 LS	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
	Gross Alpha/Beta								
	Radium-226								
	Radium-228								

20170112-08 A	MW-23M	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-09 A	MW-23D	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-10 A	MW-24S	NPW	02/07/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-11 A	MW-24M	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-12 A	MW-24D	NPW	02/07/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-13 A	MW-25S	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-14 A	MW-25M	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-15 A	MW-25D	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170112-16 A	FD-01	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input checked="" type="checkbox"/>	No	No

				LS				
				SM 7500 Ra B*				
				EPA 904*/9320*				
20170112-17 A	FD-02	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No No
Gross Alpha/Beta			LS					
Radium-226			SM 7500 Ra B*					
Radium-228			EPA 904*/9320*					
20170112-18 A	MS	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No No
Gross Alpha/Beta			LS					
Radium-226			SM 7500 Ra B*					
Radium-228			EPA 904*/9320*					
20170112-19 A	MSD	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No No
Gross Alpha/Beta			LS					
Radium-226			SM 7500 Ra B*					
Radium-228			EPA 904*/9320*					
20170112-20 A	NDC-1	NPW	02/08/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No No
Gross Alpha/Beta			LS					
Radium-226			SM 7500 Ra B*					
Radium-228			EPA 904*/9320*					
20170112-21 A	NDC-2	NPW	02/09/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No No
Gross Alpha/Beta			LS					
Radium-226			SM 7500 Ra B*					
Radium-228			EPA 904*/9320*					

**CONTAINER INSPECTION**# Coolers 6 Custody Seals Broken  Temperature: 46 C Ice

Radiation Survey: &lt;300 cpm

**SAMPLE INSPECTION**Sample Seal Broken Chain of Custody Record Labels in Tact Radiation Survey Complete N/A**Anomalies**Inspected By: Jin DATE 2/16/17QA or Designee Review: Raymond Thomas DATE 02/16/17

Sample Custodian Review: \_\_\_\_\_ DATE \_\_\_\_\_

**Project Notes:**

Customer contacted lab to have sample order changed and project split



## Case Narrative

**Lab No: 20170119**

This report contains the analytical results for the 3 sample(s) received under chain of custody by ESC Lab Sciences on 2/16/2017 11:52:39 AM. These samples are associated with your 15-0342 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below:

The test results in this report meet all NELAC requirements unless noted below:

This report shall not be reproduced, except in full, without the written approval of ESC Lab Sciences.

All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client.

Results have been reviewed by the Director of Radiochemistry or their designees and is approved for release.

### **Observations / Nonconformances**

L890737



Client : ESE Partners, LLC  
Client Project : 15-0342  
Lab Number : 20170119  
Date Reported : 03/17/17  
Date Received : 02/16/17  
Page Number : 2 of 3

## Analytical Report

	Method	Result	DL	Units	Qual	Prep Date	Analysis Date	Analyst
<b>Lab ID</b>	: 20170119-01							
<b>Client ID</b>	: MW-60S							
<b>Date Sampled</b>	: 2/9/2017 12:28:00 PM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	429 +/- 25.4	31.3	pCi/l		03/11/17	03/11/17	RE
Radium-226	SM 7500 Ra B M*	1.67 +/- 0.720	0.538	pCi/l		03/02/17	03/16/17	SD
Radium-228	EPA 904*/9320*	104 +/- 1.47	1.52	pCi/l		03/06/17	03/12/17	JR
<b>Lab ID</b>	: 20170119-02							
<b>Client ID</b>	: MW-62S							
<b>Date Sampled</b>	: 2/9/2017 11:12:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	273 +/- 25.1	34.7	pCi/l		03/11/17	03/12/17	RE
Radium-226	SM 7500 Ra B M*	0.098 +/- 0.267	0.507	pCi/l		03/02/17	03/16/17	SD
Radium-228	EPA 904*/9320*	95.7 +/- 1.24	1.96	pCi/l		03/06/17	03/12/17	JR
<b>Lab ID</b>	: 20170119-03							
<b>Client ID</b>	: MW-65S							
<b>Date Sampled</b>	: 2/9/2017 10:19:00 AM							
<b>Matrix</b>	: NPW							
<b>Radiochemical Analyses</b>								
Gross Alpha	LS	562 +/- 28.1	32.8	pCi/l		03/11/17	03/12/17	RE
Radium-226	SM 7500 Ra B M*	0.461 +/- 0.594	0.840	pCi/l		03/02/17	03/16/17	SD
Radium-228	EPA 904*/9320*	38.9 +/- 0.895	2.09	pCi/l		03/06/17	03/12/17	JR

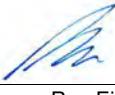


Client : ESE Partners, LLC  
Client Project : 15-0342  
Lab Number : 20170119  
Date Reported : 03/17/17  
Date Received : 02/16/17  
Page Number : 3 of 3

## QC Report

Parameter	Blank	LCS %REC	LCSD %REC	RPD	DUP RPD	RER, NAD or DER	MS %REC	MSD %REC	RPD	Batch ID
Gross Alpha	0.079	97.8					90.5	91.9	1.5	GAB1214
Radium-226	0.013	106.0			NC	0.087	110.0	94.3	15.0	R1195
Radium-228	-0.212	88.0			NC	0.202	89.2	106.0	17.1	R3930

Lab Approval:



Ron Eidson  
Director of Radiochemistry



# SAMPLE LOGIN

Date Received: 2/16/2017 11:52:3

Lab Number: 20170119

Due: 3/2/2017

Sample Number	Client Sample ID	Matrix	Date Sampled	Container Type	Container Size	Preservation	Preserved Upon Receipt	Custody Seal	Seal Intact
20170119-01 A	MW-60S	NPW	02/09/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B M*						
Radium-228			EPA 904*/9320*						
20170119-02 A	MW-62S	NPW	02/09/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						
20170119-03 A	MW-65S	NPW	02/09/17	Cube	4 L	HNO3, pH < 2	<input type="checkbox"/>	No	No
Gross Alpha/Beta			LS						
Radium-226			SM 7500 Ra B*						
Radium-228			EPA 904*/9320*						

## CONTAINER INSPECTION

# Coolers 2 Custody Seals Broken 0 Temperature: 46 C Ice  Radiation Survey: <300 cpm

## SAMPLE INSPECTION

Sample Seal Broken 0 Chain of Custody Record  Labels in Tact  Radiation Survey Complete NA  
 Anomalies Sample - old coc had sample time "12:28" and new coc has sample time "12:25", 02/16/17

Inspected By: J.W. DATE 2/16/17

QA or Designee Review: \_\_\_\_\_ DATE \_\_\_\_\_

Sample Custodian Review: \_\_\_\_\_ DATE \_\_\_\_\_

Project Notes:

Customer contacted lab to change order of samples and to split project

## ANALYTICAL SUMMARY REPORT

February 24, 2017

ESE Partners  
 19416 Park Row Ste 120  
 Houston, TX 77084-4680

Work Order: B17020841                   Quote ID: B4070 - Tex Tin

Project Name: 15-0342

Energy Laboratories Inc Billings MT received the following 20 samples for ESE Partners on 2/14/2017 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B17020841-001	MW-8S	02/08/17 13:58	02/14/17	Aqueous	Metals by ICP/ICPMS, Total Mercury, Total Digestion, Total Metals Digestion, Mercury by CVAA 8260-Volatile Organic Compounds-Short List
B17020841-002	MW-32S	02/09/17 11:07	02/14/17	Aqueous	Same As Above
B17020841-003	MW-61S	02/08/17 15:13	02/14/17	Aqueous	Same As Above
B17020841-004	MW-22S	02/08/17 14:42	02/14/17	Aqueous	Same As Above
B17020841-005	MW-22M	02/08/17 14:03	02/14/17	Aqueous	Same As Above
B17020841-006	MW-22D	02/08/17 13:40	02/14/17	Aqueous	Same As Above
B17020841-007	MW-23S	02/08/17 11:23	02/14/17	Aqueous	Same As Above
B17020841-008	MW-23M	02/08/17 10:38	02/14/17	Aqueous	Same As Above
B17020841-009	MW-23D	02/08/17 10:02	02/14/17	Aqueous	Same As Above
B17020841-010	MW-24S	02/07/17 15:36	02/14/17	Aqueous	Same As Above
B17020841-011	MW-24M	02/08/17 8:52	02/14/17	Aqueous	Same As Above
B17020841-012	MW-24D	02/07/17 15:25	02/14/17	Aqueous	Same As Above
B17020841-013	MW-25S	02/08/17 10:55	02/14/17	Aqueous	Same As Above
B17020841-014	MW-25M	02/08/17 11:10	02/14/17	Aqueous	Same As Above
B17020841-015	MW-25D	02/08/17 10:32	02/14/17	Aqueous	Same As Above
B17020841-016	FD-01		02/14/17	Aqueous	Same As Above
B17020841-017	FD-02		02/14/17	Aqueous	Same As Above
B17020841-018	MS/MSD		02/14/17	Aqueous	Same As Above
B17020841-019	NDC-1	02/08/17 16:06	02/14/17	Aqueous	Same As Above
B17020841-020	NDC-2	02/09/17 9:08	02/14/17	Aqueous	Same As Above

## ANALYTICAL SUMMARY REPORT

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-001  
**Client Sample ID:** MW-8S

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 13:58  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 17:51 / mas
Arsenic	ND	mg/L		0.001	SW6020		02/17/17 17:51 / mas
Barium	ND	mg/L		0.05	SW6010B		02/16/17 16:04 / rlh
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 17:51 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 17:51 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 18:07 / mas
Copper	0.007	mg/L		0.005	SW6020		02/21/17 18:07 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 14:51 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 18:07 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 18:07 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 11:05 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 11:05 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 11:05 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 11:05 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 11:05 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 11:05 / jrj
Surr: Dibromofluoromethane	87.0	%REC		77-126	SW8260B		02/17/17 11:05 / jrj
Surr: 1,2-Dichloroethane-d4	80.0	%REC		70-130	SW8260B		02/17/17 11:05 / jrj
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B		02/17/17 11:05 / jrj
Surr: p-Bromofluorobenzene	92.0	%REC		76-127	SW8260B		02/17/17 11:05 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-002  
**Client Sample ID:** MW-32S

**Report Date:** 02/24/17  
**Collection Date:** 02/09/17 11:07  
**DateReceived:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L	D	0.006	SW6020	02/17/17 17:54 / mas	
Arsenic	ND	mg/L	D	0.006	SW6020	02/21/17 18:10 / mas	
Barium	2.66	mg/L		0.05	SW6020	02/17/17 17:54 / mas	
Beryllium	ND	mg/L		0.001	SW6020	02/21/17 18:10 / mas	
Cadmium	0.556	mg/L	D	0.003	SW6020	02/17/17 17:54 / mas	
Chromium	ND	mg/L	D	0.007	SW6020	02/21/17 18:10 / mas	
Copper	9.41	mg/L		0.005	SW6020	02/17/17 17:54 / mas	
Mercury	ND	mg/L	D	0.0002	SW7470A	02/15/17 14:53 / jh	
Nickel	0.459	mg/L		0.005	SW6020	02/17/17 17:54 / mas	
Selenium	0.10	mg/L	D	0.03	SW6020	02/17/17 17:54 / mas	
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B	02/17/17 11:35 / jrj	
Bromodichloromethane	ND	ug/L		1.0	SW8260B	02/17/17 11:35 / jrj	
Bromoform	ND	ug/L		1.0	SW8260B	02/17/17 11:35 / jrj	
Chlorodibromomethane	ND	ug/L		1.0	SW8260B	02/17/17 11:35 / jrj	
Chloroform	1.8	ug/L		1.0	SW8260B	02/17/17 11:35 / jrj	
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B	02/17/17 11:35 / jrj	
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B	02/17/17 11:35 / jrj	
Surr: 1,2-Dichloroethane-d4	91.0	%REC		70-130	SW8260B	02/17/17 11:35 / jrj	
Surr: Toluene-d8	94.0	%REC		79-122	SW8260B	02/17/17 11:35 / jrj	
Surr: p-Bromofluorobenzene	98.0	%REC		76-127	SW8260B	02/17/17 11:35 / jrj	

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-003  
**Client Sample ID:** MW-61S

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 15:13  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	0.001	mg/L		0.001	SW6020		02/21/17 18:13 / mas
Arsenic	0.083	mg/L		0.001	SW6020		02/21/17 18:13 / mas
Barium	0.28	mg/L		0.05	SW6010B		02/16/17 16:11 / rlh
Beryllium	0.008	mg/L		0.001	SW6020		02/17/17 17:58 / mas
Cadmium	0.115	mg/L		0.001	SW6020		02/17/17 17:58 / mas
Chromium	ND	mg/L		0.005	SW6020		02/23/17 00:55 / mas
Copper	4.41	mg/L		0.005	SW6020		02/17/17 17:58 / mas
Mercury	0.0006	mg/L		0.0001	SW7470A		02/17/17 13:01 / jh
Nickel	0.245	mg/L		0.005	SW6020		02/21/17 18:13 / mas
Selenium	ND	mg/L	D	0.003	SW6020		02/21/17 18:13 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 12:04 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 12:04 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 12:04 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 12:04 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 12:04 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 12:04 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 12:04 / jrj
Surr: 1,2-Dichloroethane-d4	83.0	%REC		70-130	SW8260B		02/17/17 12:04 / jrj
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B		02/17/17 12:04 / jrj
Surr: p-Bromofluorobenzene	94.0	%REC		76-127	SW8260B		02/17/17 12:04 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-004  
**Client Sample ID:** MW-22S

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 14:42  
**DateReceived:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L	D	0.004	SW6020		02/17/17 18:01 / mas
Arsenic	ND	mg/L	D	0.006	SW6020		02/21/17 18:17 / mas
Barium	1.18	mg/L		0.05	SW6020		02/17/17 18:01 / mas
Beryllium	ND	mg/L	D	0.003	SW6020		02/17/17 18:01 / mas
Cadmium	0.774	mg/L		0.001	SW6020		02/21/17 18:17 / mas
Chromium	ND	mg/L	D	0.007	SW6020		02/23/17 00:59 / mas
Copper	0.019	mg/L		0.005	SW6020		02/17/17 18:01 / mas
Mercury	ND	mg/L	D	0.0002	SW7470A		02/15/17 14:57 / jh
Nickel	0.072	mg/L	D	0.007	SW6020		02/21/17 18:17 / mas
Selenium	ND	mg/L	D	0.02	SW6020		02/21/17 18:17 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 12:33 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 12:33 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 12:33 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 12:33 / jrj
Chloroform	1.1	ug/L		1.0	SW8260B		02/17/17 12:33 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 12:33 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 12:33 / jrj
Surr: 1,2-Dichloroethane-d4	93.0	%REC		70-130	SW8260B		02/17/17 12:33 / jrj
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B		02/17/17 12:33 / jrj
Surr: p-Bromofluorobenzene	96.0	%REC		76-127	SW8260B		02/17/17 12:33 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-005  
**Client Sample ID:** MW-22M

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 14:03  
**DateReceived:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:04 / mas
Arsenic	0.002	mg/L		0.001	SW6020		02/21/17 18:20 / mas
Barium	0.15	mg/L		0.05	SW6020		02/17/17 18:04 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:04 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 18:04 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 18:20 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 18:20 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 14:59 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 18:20 / mas
Selenium	ND	mg/L	D	0.003	SW6020		02/21/17 18:20 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 13:02 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 13:02 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 13:02 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 13:02 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 13:02 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 13:02 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 13:02 / jrj
Surr: 1,2-Dichloroethane-d4	84.0	%REC		70-130	SW8260B		02/17/17 13:02 / jrj
Surr: Toluene-d8	99.0	%REC		79-122	SW8260B		02/17/17 13:02 / jrj
Surr: p-Bromofluorobenzene	91.0	%REC		76-127	SW8260B		02/17/17 13:02 / jrj

<b>Report Definitions:</b>	RL - Analyte reporting limit.	MCL - Maximum contaminant level.
	QCL - Quality control limit.	ND - Not detected at the reporting limit.
	D - RL increased due to sample matrix.	

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-006  
**Client Sample ID:** MW-22D

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 13:40  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:08 / mas
Arsenic	0.002	mg/L		0.001	SW6020		02/17/17 18:08 / mas
Barium	0.30	mg/L		0.05	SW6020		02/17/17 18:08 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:08 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 18:08 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 18:23 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 18:23 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:00 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 18:23 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 18:23 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 13:32 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 13:32 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 13:32 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 13:32 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 13:32 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 13:32 / jrj
Surr: Dibromofluoromethane	88.0	%REC		77-126	SW8260B		02/17/17 13:32 / jrj
Surr: 1,2-Dichloroethane-d4	80.0	%REC		70-130	SW8260B		02/17/17 13:32 / jrj
Surr: Toluene-d8	101	%REC		79-122	SW8260B		02/17/17 13:32 / jrj
Surr: p-Bromofluorobenzene	95.0	%REC		76-127	SW8260B		02/17/17 13:32 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-007  
**Client Sample ID:** MW-23S

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 11:23  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/21/17 18:27 / mas
Arsenic	ND	mg/L	D	0.003	SW6020		02/21/17 18:27 / mas
Barium	1.40	mg/L		0.05	SW6020		02/17/17 18:11 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:11 / mas
Cadmium	0.692	mg/L		0.001	SW6020		02/17/17 18:11 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 18:27 / mas
Copper	2.59	mg/L		0.005	SW6020		02/21/17 18:27 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:02 / jh
Nickel	0.035	mg/L		0.005	SW6020		02/21/17 18:27 / mas
Selenium	ND	mg/L	D	0.008	SW6020		02/21/17 18:27 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	58	ug/L		5.0	SW8260B		02/21/17 12:57 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 14:01 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 14:01 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 14:01 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 14:01 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 14:01 / jrj
Surr: Dibromofluoromethane	91.0	%REC		77-126	SW8260B		02/17/17 14:01 / jrj
Surr: 1,2-Dichloroethane-d4	88.0	%REC		70-130	SW8260B		02/17/17 14:01 / jrj
Surr: Toluene-d8	100	%REC		79-122	SW8260B		02/17/17 14:01 / jrj
Surr: p-Bromofluorobenzene	95.0	%REC		76-127	SW8260B		02/17/17 14:01 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-008  
**Client Sample ID:** MW-23M

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 10:38  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:14 / mas
Arsenic	0.002	mg/L		0.001	SW6020		02/21/17 18:30 / mas
Barium	0.17	mg/L		0.05	SW6020		02/17/17 18:14 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:14 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 18:14 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 18:30 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 18:30 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:04 / jrj
Nickel	ND	mg/L		0.005	SW6020		02/21/17 18:30 / mas
Selenium	ND	mg/L	D	0.002	SW6020		02/21/17 18:30 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 14:30 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 14:30 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 14:30 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 14:30 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 14:30 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 14:30 / jrj
Surr: Dibromofluoromethane	88.0	%REC		77-126	SW8260B		02/17/17 14:30 / jrj
Surr: 1,2-Dichloroethane-d4	82.0	%REC		70-130	SW8260B		02/17/17 14:30 / jrj
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B		02/17/17 14:30 / jrj
Surr: p-Bromofluorobenzene	94.0	%REC		76-127	SW8260B		02/17/17 14:30 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-009  
**Client Sample ID:** MW-23D

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 10:02  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:45 / mas
Arsenic	0.003	mg/L		0.001	SW6020		02/21/17 19:00 / mas
Barium	0.27	mg/L		0.05	SW6020		02/17/17 18:45 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:45 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 18:45 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:00 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 19:00 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:06 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:00 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 19:00 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 15:00 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 15:00 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 15:00 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 15:00 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 15:00 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 15:00 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 15:00 / jrj
Surr: 1,2-Dichloroethane-d4	80.0	%REC		70-130	SW8260B		02/17/17 15:00 / jrj
Surr: Toluene-d8	96.0	%REC		79-122	SW8260B		02/17/17 15:00 / jrj
Surr: p-Bromofluorobenzene	94.0	%REC		76-127	SW8260B		02/17/17 15:00 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-010  
**Client Sample ID:** MW-24S

**Report Date:** 02/24/17  
**Collection Date:** 02/07/17 15:36  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:48 / mas
Arsenic	ND	mg/L		0.001	SW6020		02/17/17 18:48 / mas
Barium	0.08	mg/L		0.05	SW6010B		02/16/17 16:57 / rlh
Beryllium	ND	mg/L		0.001	SW6010B		02/16/17 16:57 / rlh
Cadmium	0.017	mg/L		0.001	SW6020		02/17/17 18:48 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:03 / mas
Copper	0.516	mg/L		0.005	SW6020		02/21/17 19:03 / mas
Mercury	0.0006	mg/L		0.0001	SW7470A		02/17/17 13:02 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:03 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 19:03 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	14	ug/L		1.0	SW8260B		02/17/17 15:29 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 15:29 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 15:29 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 15:29 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 15:29 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 15:29 / jrj
Surr: Dibromofluoromethane	89.0	%REC		77-126	SW8260B		02/17/17 15:29 / jrj
Surr: 1,2-Dichloroethane-d4	81.0	%REC		70-130	SW8260B		02/17/17 15:29 / jrj
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B		02/17/17 15:29 / jrj
Surr: p-Bromofluorobenzene	95.0	%REC		76-127	SW8260B		02/17/17 15:29 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-011  
**Client Sample ID:** MW-24M

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 08:52  
**DateReceived:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:51 / mas
Arsenic	ND	mg/L	D	0.003	SW6020		02/17/17 18:51 / mas
Barium	0.66	mg/L		0.05	SW6020		02/17/17 18:51 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:51 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 18:51 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:07 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 19:07 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:13 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:07 / mas
Selenium	ND	mg/L	D	0.003	SW6020		02/21/17 19:07 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 15:58 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 15:58 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 15:58 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 15:58 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 15:58 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 15:58 / jrj
Surr: Dibromofluoromethane	91.0	%REC		77-126	SW8260B		02/17/17 15:58 / jrj
Surr: 1,2-Dichloroethane-d4	82.0	%REC		70-130	SW8260B		02/17/17 15:58 / jrj
Surr: Toluene-d8	103	%REC		79-122	SW8260B		02/17/17 15:58 / jrj
Surr: p-Bromofluorobenzene	97.0	%REC		76-127	SW8260B		02/17/17 15:58 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-012  
**Client Sample ID:** MW-24D

**Report Date:** 02/24/17  
**Collection Date:** 02/07/17 15:25  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 18:55 / mas
Arsenic	ND	mg/L		0.001	SW6020		02/17/17 18:55 / mas
Barium	0.17	mg/L		0.05	SW6020		02/17/17 18:55 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 18:55 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 18:55 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:10 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 19:10 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:15 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:10 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 19:10 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 16:28 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 16:28 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 16:28 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 16:28 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 16:28 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 16:28 / jrj
Surr: Dibromofluoromethane	89.0	%REC		77-126	SW8260B		02/17/17 16:28 / jrj
Surr: 1,2-Dichloroethane-d4	82.0	%REC		70-130	SW8260B		02/17/17 16:28 / jrj
Surr: Toluene-d8	100	%REC		79-122	SW8260B		02/17/17 16:28 / jrj
Surr: p-Bromofluorobenzene	95.0	%REC		76-127	SW8260B		02/17/17 16:28 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-013  
**Client Sample ID:** MW-25S

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 10:55  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L	D	0.002	SW6020	02/21/17 19:14 / mas	
Arsenic	ND	mg/L	D	0.02	SW6020	02/17/17 18:58 / mas	
Barium	1.83	mg/L		0.05	SW6020	02/17/17 18:58 / mas	
Beryllium	0.011	mg/L		0.001	SW6020	02/17/17 18:58 / mas	
Cadmium	1.38	mg/L		0.001	SW6020	02/17/17 18:58 / mas	
Chromium	0.014	mg/L	D	0.007	SW6020	02/23/17 01:02 / mas	
Copper	0.600	mg/L	D	0.007	SW6020	02/21/17 19:14 / mas	
Mercury	ND	mg/L	D	0.0002	SW7470A	02/15/17 15:17 / jh	
Nickel	0.484	mg/L	D	0.007	SW6020	02/21/17 19:14 / mas	
Selenium	ND	mg/L	D	0.02	SW6020	02/21/17 19:14 / mas	
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B	02/17/17 16:57 / jrj	
Bromodichloromethane	ND	ug/L		1.0	SW8260B	02/17/17 16:57 / jrj	
Bromoform	ND	ug/L		1.0	SW8260B	02/17/17 16:57 / jrj	
Chlorodibromomethane	ND	ug/L		1.0	SW8260B	02/17/17 16:57 / jrj	
Chloroform	ND	ug/L		1.0	SW8260B	02/17/17 16:57 / jrj	
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B	02/17/17 16:57 / jrj	
Surr: Dibromofluoromethane	93.0	%REC		77-126	SW8260B	02/17/17 16:57 / jrj	
Surr: 1,2-Dichloroethane-d4	89.0	%REC		70-130	SW8260B	02/17/17 16:57 / jrj	
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B	02/17/17 16:57 / jrj	
Surr: p-Bromofluorobenzene	95.0	%REC		76-127	SW8260B	02/17/17 16:57 / jrj	

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-014  
**Client Sample ID:** MW-25M

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 11:10  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 19:11 / mas
Arsenic	ND	mg/L		0.001	SW6020		02/21/17 19:27 / mas
Barium	0.36	mg/L		0.05	SW6020		02/17/17 19:11 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 19:11 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 19:11 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:27 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 19:27 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:18 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:27 / mas
Selenium	ND	mg/L	D	0.002	SW6020		02/21/17 19:27 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 17:26 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 17:26 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 17:26 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 17:26 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 17:26 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 17:26 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 17:26 / jrj
Surr: 1,2-Dichloroethane-d4	84.0	%REC		70-130	SW8260B		02/17/17 17:26 / jrj
Surr: Toluene-d8	100	%REC		79-122	SW8260B		02/17/17 17:26 / jrj
Surr: p-Bromofluorobenzene	94.0	%REC		76-127	SW8260B		02/17/17 17:26 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-015  
**Client Sample ID:** MW-25D

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 10:32  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 19:15 / mas
Arsenic	0.002	mg/L		0.001	SW6020		02/17/17 19:15 / mas
Barium	ND	mg/L		0.05	SW6020		02/17/17 19:15 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 19:15 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 19:15 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:30 / mas
Copper	0.008	mg/L		0.005	SW6020		02/21/17 19:30 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:20 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:30 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 19:30 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 17:55 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 17:55 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 17:55 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 17:55 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 17:55 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 17:55 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 17:55 / jrj
Surr: 1,2-Dichloroethane-d4	82.0	%REC		70-130	SW8260B		02/17/17 17:55 / jrj
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B		02/17/17 17:55 / jrj
Surr: p-Bromofluorobenzene	94.0	%REC		76-127	SW8260B		02/17/17 17:55 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-016  
**Client Sample ID:** FD-01

**Report Date:** 02/24/17  
**Collection Date:** Not Provided  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 19:18 / mas
Arsenic	ND	mg/L		0.001	SW6020		02/21/17 19:34 / mas
Barium	ND	mg/L		0.05	SW6020		02/17/17 19:18 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 19:18 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 19:18 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:34 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 19:34 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:22 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:34 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 19:34 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 18:25 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 18:25 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 18:25 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 18:25 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 18:25 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 18:25 / jrj
Surr: Dibromofluoromethane	91.0	%REC		77-126	SW8260B		02/17/17 18:25 / jrj
Surr: 1,2-Dichloroethane-d4	84.0	%REC		70-130	SW8260B		02/17/17 18:25 / jrj
Surr: Toluene-d8	99.0	%REC		79-122	SW8260B		02/17/17 18:25 / jrj
Surr: p-Bromofluorobenzene	96.0	%REC		76-127	SW8260B		02/17/17 18:25 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-017  
**Client Sample ID:** FD-02

**Report Date:** 02/24/17  
**Collection Date:** Not Provided  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 19:21 / mas
Arsenic	0.092	mg/L		0.001	SW6020		02/21/17 19:37 / mas
Barium	0.26	mg/L		0.05	SW6020		02/17/17 19:21 / mas
Beryllium	0.008	mg/L		0.001	SW6020		02/17/17 19:21 / mas
Cadmium	0.112	mg/L		0.001	SW6020		02/17/17 19:21 / mas
Chromium	0.006	mg/L		0.005	SW6020		02/23/17 01:16 / mas
Copper	4.46	mg/L		0.005	SW6020		02/21/17 19:37 / mas
Mercury	0.0005	mg/L		0.0001	SW7470A		02/17/17 13:04 / jh
Nickel	0.255	mg/L		0.005	SW6020		02/21/17 19:37 / mas
Selenium	ND	mg/L	D	0.003	SW6020		02/21/17 19:37 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 18:54 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 18:54 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 18:54 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 18:54 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 18:54 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 18:54 / jrj
Surr: Dibromofluoromethane	90.0	%REC		77-126	SW8260B		02/17/17 18:54 / jrj
Surr: 1,2-Dichloroethane-d4	85.0	%REC		70-130	SW8260B		02/17/17 18:54 / jrj
Surr: Toluene-d8	100	%REC		79-122	SW8260B		02/17/17 18:54 / jrj
Surr: p-Bromofluorobenzene	94.0	%REC		76-127	SW8260B		02/17/17 18:54 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-018  
**Client Sample ID:** MS/MSD

**Report Date:** 02/24/17  
**Collection Date:** Not Provided  
**Date Received:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L		0.001	SW6020		02/17/17 19:35 / mas
Arsenic	ND	mg/L		0.001	SW6020		02/21/17 19:57 / mas
Barium	ND	mg/L		0.05	SW6020		02/17/17 19:35 / mas
Beryllium	ND	mg/L		0.001	SW6020		02/17/17 19:35 / mas
Cadmium	ND	mg/L		0.001	SW6020		02/17/17 19:35 / mas
Chromium	ND	mg/L		0.005	SW6020		02/21/17 19:57 / mas
Copper	ND	mg/L		0.005	SW6020		02/21/17 19:57 / mas
Mercury	ND	mg/L		0.0001	SW7470A		02/15/17 15:26 / jh
Nickel	ND	mg/L		0.005	SW6020		02/21/17 19:57 / mas
Selenium	ND	mg/L		0.001	SW6020		02/21/17 19:57 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 10:36 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 10:36 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 10:36 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 10:36 / jrj
Chloroform	ND	ug/L		1.0	SW8260B		02/17/17 10:36 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 10:36 / jrj
Surr: Dibromofluoromethane	88.0	%REC		77-126	SW8260B		02/17/17 10:36 / jrj
Surr: 1,2-Dichloroethane-d4	79.0	%REC		70-130	SW8260B		02/17/17 10:36 / jrj
Surr: Toluene-d8	96.0	%REC		79-122	SW8260B		02/17/17 10:36 / jrj
Surr: p-Bromofluorobenzene	90.0	%REC		76-127	SW8260B		02/17/17 10:36 / jrj

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-019  
**Client Sample ID:** NDC-1

**Report Date:** 02/24/17  
**Collection Date:** 02/08/17 16:06  
**DateReceived:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L	D	0.006	SW6020	02/17/17 20:18 / mas	
Arsenic	0.10	mg/L	D	0.03	SW6020	02/17/17 20:18 / mas	
Barium	4.12	mg/L		0.05	SW6020	02/17/17 20:18 / mas	
Beryllium	0.726	mg/L	D	0.003	SW6020	02/17/17 20:18 / mas	
Cadmium	4.98	mg/L	D	0.003	SW6020	02/17/17 20:18 / mas	
Chromium	ND	mg/L		0.005	SW6020	02/17/17 20:18 / mas	
Copper	138	mg/L	D	2	SW6010B	02/17/17 17:59 / rlh	
Mercury	0.148	mg/L	D	0.002	SW7470A	02/17/17 13:13 / jh	
Nickel	9.83	mg/L		0.005	SW6020	02/17/17 20:18 / mas	
Selenium	0.38	mg/L	D	0.03	SW6020	02/17/17 20:18 / mas	
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B	02/17/17 19:23 / jrj	
Bromodichloromethane	ND	ug/L		1.0	SW8260B	02/17/17 19:23 / jrj	
Bromoform	ND	ug/L		1.0	SW8260B	02/17/17 19:23 / jrj	
Chlorodibromomethane	ND	ug/L		1.0	SW8260B	02/17/17 19:23 / jrj	
Chloroform	8.7	ug/L		1.0	SW8260B	02/17/17 19:23 / jrj	
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B	02/17/17 19:23 / jrj	
Surr: Dibromofluoromethane	96.0	%REC		77-126	SW8260B	02/17/17 19:23 / jrj	
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130	SW8260B	02/17/17 19:23 / jrj	
Surr: Toluene-d8	98.0	%REC		79-122	SW8260B	02/17/17 19:23 / jrj	
Surr: p-Bromofluorobenzene	97.0	%REC		76-127	SW8260B	02/17/17 19:23 / jrj	

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** ESE Partners  
**Project:** 15-0342  
**Lab ID:** B17020841-020  
**Client Sample ID:** NDC-2

**Report Date:** 02/24/17  
**Collection Date:** 02/09/17 09:08  
**DateReceived:** 02/14/17  
**Matrix:** Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>METALS, TOTAL</b>							
Antimony	ND	mg/L	D	0.006	SW6020		02/17/17 19:41 / mas
Arsenic	ND	mg/L	D	0.03	SW6020		02/17/17 19:41 / mas
Barium	5.12	mg/L		0.05	SW6020		02/17/17 19:41 / mas
Beryllium	0.224	mg/L	D	0.003	SW6020		02/17/17 19:41 / mas
Cadmium	4.62	mg/L	D	0.003	SW6020		02/17/17 19:41 / mas
Chromium	ND	mg/L		0.005	SW6020		02/17/17 19:41 / mas
Copper	142	mg/L		0.005	SW6020		02/17/17 19:41 / mas
Mercury	0.094	mg/L	D	0.002	SW7470A		02/17/17 13:19 / jrj
Nickel	4.49	mg/L		0.005	SW6020		02/17/17 19:41 / mas
Selenium	0.14	mg/L	D	0.03	SW6020		02/17/17 19:41 / mas
<b>VOLATILE ORGANIC COMPOUNDS</b>							
Benzene	ND	ug/L		1.0	SW8260B		02/17/17 19:53 / jrj
Bromodichloromethane	ND	ug/L		1.0	SW8260B		02/17/17 19:53 / jrj
Bromoform	ND	ug/L		1.0	SW8260B		02/17/17 19:53 / jrj
Chlorodibromomethane	ND	ug/L		1.0	SW8260B		02/17/17 19:53 / jrj
Chloroform	8.6	ug/L		1.0	SW8260B		02/17/17 19:53 / jrj
1,2-Dichloroethane	ND	ug/L		1.0	SW8260B		02/17/17 19:53 / jrj
Surr: Dibromofluoromethane	93.0	%REC		77-126	SW8260B		02/17/17 19:53 / jrj
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130	SW8260B		02/17/17 19:53 / jrj
Surr: Toluene-d8	94.0	%REC		79-122	SW8260B		02/17/17 19:53 / jrj
Surr: p-Bromofluorobenzene	96.0	%REC		76-127	SW8260B		02/17/17 19:53 / jrj

**Report Definitions:** RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6010B								Analytical Run: ICP203-B_170216A		
<b>Lab ID:</b> QCS	2	Initial Calibration Verification Standard								02/16/17 10:09
Barium		0.776	mg/L	0.10	97	90	110			
Beryllium		0.393	mg/L	0.010	98	90	110			
<b>Lab ID:</b> ICSA	2	Interference Check Sample A								02/16/17 10:12
Barium		-0.0000400	mg/L	0.10						
Beryllium		0.000170	mg/L	0.010						
<b>Lab ID:</b> ICSAB	2	Interference Check Sample AB								02/16/17 10:16
Barium		0.468	mg/L	0.10	94	80	120			
Beryllium		0.461	mg/L	0.010	92	80	120			
<b>Method:</b> SW6010B								Batch: 106736		
<b>Lab ID:</b> MB-106736	2	Method Blank								02/16/17 15:32
Barium		ND	mg/L	0.001						
Beryllium		ND	mg/L	0.0002						
<b>Lab ID:</b> LCS-106736	2	Laboratory Control Sample								02/16/17 15:35
Barium		5.16	mg/L	0.10	94	80	120			
Beryllium		0.229	mg/L	0.010	92	80	120			
<b>Lab ID:</b> B17020369-001DDIL	2	Serial Dilution								02/16/17 15:43
Barium		0.0338	mg/L	0.050						
Beryllium		ND	mg/L	0.0011						
<b>Lab ID:</b> B17020369-001DPDS	2	Post Digestion/Distillation Spike								02/16/17 15:46
Barium		0.974	mg/L	0.050	91	75	125			
Beryllium		0.452	mg/L	0.0010	88	75	125			
<b>Lab ID:</b> B17020369-001DMS3	2	Sample Matrix Spike								02/16/17 15:50
Barium		5.18	mg/L	0.050	94	75	125			
Beryllium		0.225	mg/L	0.0010	90	75	125			
<b>Lab ID:</b> B17020369-001DMSD	2	Sample Matrix Spike Duplicate								02/16/17 15:53
Barium		5.18	mg/L	0.050	94	75	125	0.0	20	
Beryllium		0.226	mg/L	0.0010	91	75	125	0.7	20	
<b>Lab ID:</b> B17020841-008ADIL	2	Serial Dilution								02/16/17 16:32
Barium		ND	mg/L	0.57						
Beryllium		ND	mg/L	0.11						
<b>Lab ID:</b> B17020841-008APDS	2	Post Digestion/Distillation Spike								02/16/17 16:36
Barium		92.5	mg/L	0.12	90	75	125			
Beryllium		46.0	mg/L	0.023	89	75	125			
<b>Lab ID:</b> B17020841-008AMS3	2	Sample Matrix Spike								02/16/17 16:46
Barium		5.34	mg/L	0.11	94	75	125			
Beryllium		0.232	mg/L	0.022	93	75	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6010B	Batch: 106736									
<b>Lab ID:</b> B17020841-008AMSD	2	Sample Matrix Spike Duplicate						Run: ICP203-B_170216A		
Barium		5.41	mg/L	0.11	95	75	125	1.3	20	
Beryllium		0.229	mg/L	0.022	91	75	125	1.6	20	
<b>Method:</b> SW6010B	Analytical Run: ICP203-B_170217A									
<b>Lab ID:</b> QCS	Initial Calibration Verification Standard						02/17/17 09:56			
Copper		0.783	mg/L	0.010	98	90	110			
<b>Lab ID:</b> ICSA	02/17/17 09:59									
Copper		-0.000830	mg/L	0.010						
<b>Lab ID:</b> ICSAB	02/17/17 10:03									
Copper		0.464	mg/L	0.010	93	80	120			
<b>Method:</b> SW6010B	Batch: 106769									
<b>Lab ID:</b> MB-106769	Method Blank						Run: ICP203-B_170217A			
Copper		ND	mg/L	0.01						
<b>Lab ID:</b> LCS-106769	02/17/17 17:55									
Copper		0.484	mg/L	0.012	97	80	120			
<b>Lab ID:</b> B17020841-019CDIL	Serial Dilution						Run: ICP203-B_170217A			
Copper		143	mg/L	12				3.6	10	
<b>Lab ID:</b> B17020841-019CPDS	02/17/17 18:06									
Copper		337	mg/L	2.4	96	75	125			
<b>Lab ID:</b> B17020841-019CMS3	Run: ICP203-B_170217A						02/17/17 18:09			
Copper		145	mg/L	2.3		75	125			A
<b>Lab ID:</b> B17020841-019CMSD	Run: ICP203-B_170217A						02/17/17 18:13			
Copper		144	mg/L	2.3		75	125	0.2	20	A

**Qualifiers:**

RL - Analyte reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020								Analytical Run: ICPMS206-B_170217A		
<b>Lab ID:</b> QCS	9	Initial Calibration Verification Standard								02/17/17 10:26
Antimony		0.0498	mg/L	0.0010	100	90	110			
Arsenic		0.0521	mg/L	0.0010	104	90	110			
Barium		0.0498	mg/L	0.0010	100	90	110			
Beryllium		0.0252	mg/L	0.0010	101	90	110			
Cadmium		0.0264	mg/L	0.0010	106	90	110			
Chromium		0.0522	mg/L	0.0010	104	90	110			
Copper		0.0523	mg/L	0.0010	105	90	110			
Nickel		0.0527	mg/L	0.0010	105	90	110			
Selenium		0.0523	mg/L	0.0010	105	90	110			
<b>Lab ID:</b> ICSA	9	Interference Check Sample A								02/17/17 10:53
Antimony		-0.0000511	mg/L	0.0010						
Arsenic		6.49E-06	mg/L	0.0010						
Barium		0.0000780	mg/L	0.0010						
Beryllium		-0.0000349	mg/L	0.0010						
Cadmium		0.0000468	mg/L	0.0010						
Chromium		0.000813	mg/L	0.0010						
Copper		0.000282	mg/L	0.0010						
Nickel		0.000301	mg/L	0.0010						
Selenium		0.000159	mg/L	0.0010						
<b>Lab ID:</b> ICSAB	9	Interference Check Sample AB								02/17/17 10:56
Antimony		-0.0000772	mg/L	0.0010		0	0			
Arsenic		0.0108	mg/L	0.0010	108	70	130			
Barium		0.000102	mg/L	0.0010		0	0			
Beryllium		-0.0000294	mg/L	0.0010		0	0			
Cadmium		0.0104	mg/L	0.0010	104	70	130			
Chromium		0.0211	mg/L	0.0010	106	70	130			
Copper		0.0201	mg/L	0.0010	100	70	130			
Nickel		0.0199	mg/L	0.0010	99	70	130			
Selenium		0.00992	mg/L	0.0010	99	70	130			
<b>Method:</b> SW6020								Batch: 106736		
<b>Lab ID:</b> MB-106736	9	Method Blank								Run: ICPMS206-B_170217A 02/17/17 17:11
Antimony		ND	mg/L	0.00008						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00006						
Cadmium		ND	mg/L	0.00006						
Chromium		0.006	mg/L	0.0003						
Copper		0.0004	mg/L	0.0003						
Nickel		0.001	mg/L	0.0003						
Selenium		0.003	mg/L	0.0007						

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020										Batch: 106736
<b>Lab ID:</b> LCS-106736	9	Laboratory Control Sample						Run: ICPMS206-B_170217A		02/17/17 17:14
Antimony		0.448	mg/L	0.0010	90	80	120			
Arsenic		0.478	mg/L	0.0010	96	80	120			
Barium		5.11	mg/L	0.0010	93	80	120			
Beryllium		0.232	mg/L	0.010	93	80	120			
Cadmium		0.240	mg/L	0.0050	96	80	120			
Chromium		0.510	mg/L	0.0010	101	80	120			
Copper		0.473	mg/L	0.0010	94	80	120			
Nickel		0.485	mg/L	0.0010	97	80	120			
Selenium		0.477	mg/L	0.0010	95	80	120			
<b>Lab ID:</b> B17020369-001DDIL	9	Serial Dilution						Run: ICPMS206-B_170217A		02/17/17 17:24
Antimony		ND	mg/L	0.0010					10	
Arsenic		0.0133	mg/L	0.0029					10	N
Barium		0.0349	mg/L	0.050					10	
Beryllium		ND	mg/L	0.0010					10	
Cadmium		0.00180	mg/L	0.0010					10	N
Chromium		ND	mg/L	0.0050					10	
Copper		0.00628	mg/L	0.0050					10	N
Nickel		ND	mg/L	0.0050					10	
Selenium		0.309	mg/L	0.0085				5.7	10	
<b>Lab ID:</b> B17020369-001DPDS	9	Post Digestion/Distillation Spike						Run: ICPMS206-B_170217A		02/17/17 17:28
Antimony		0.216	mg/L	0.0010	86	75	125			
Arsenic		0.240	mg/L	0.0010	92	75	125			
Barium		0.265	mg/L	0.050	93	75	125			
Beryllium		0.232	mg/L	0.0010	93	75	125			
Cadmium		0.227	mg/L	0.0010	91	75	125			
Chromium		0.241	mg/L	0.0050	96	75	125			
Copper		0.224	mg/L	0.0050	89	75	125			
Nickel		0.222	mg/L	0.0050	89	75	125			
Selenium		0.525	mg/L	0.0017	93	75	125			
<b>Lab ID:</b> B17020369-001DMS3	9	Sample Matrix Spike						Run: ICPMS206-B_170217A		02/17/17 17:31
Antimony		0.480	mg/L	0.0010	96	75	125			
Arsenic		0.500	mg/L	0.0010	98	75	125			
Barium		5.33	mg/L	0.050	96	75	125			
Beryllium		0.235	mg/L	0.0010	94	75	125			
Cadmium		0.241	mg/L	0.0010	96	75	125			
Chromium		0.512	mg/L	0.0050	102	75	125			
Copper		0.473	mg/L	0.0050	94	75	125			
Nickel		0.489	mg/L	0.0050	98	75	125			
Selenium		0.772	mg/L	0.0017	96	75	125			
<b>Lab ID:</b> B17020369-001DMSD	9	Sample Matrix Spike Duplicate						Run: ICPMS206-B_170217A		02/17/17 17:44
Antimony		0.474	mg/L	0.0010	95	75	125	1.2	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020										Batch: 106736
<b>Lab ID:</b> B17020369-001DMSD	9	Sample Matrix Spike Duplicate						Run: ICPMS206-B_170217A		02/17/17 17:44
Arsenic		0.527	mg/L	0.0010	103	75	125	5.2		20
Barium		5.18	mg/L	0.050	94	75	125	2.9		20
Beryllium		0.246	mg/L	0.0010	98	75	125	4.5		20
Cadmium		0.249	mg/L	0.0010	99	75	125	2.9		20
Chromium		0.529	mg/L	0.0050	106	75	125	3.3		20
Copper		0.488	mg/L	0.0050	97	75	125	3.0		20
Nickel		0.489	mg/L	0.0050	98	75	125	0.2		20
Selenium		0.782	mg/L	0.0017	98	75	125	1.3		20
<b>Lab ID:</b> B17020841-008ADIL	9	Serial Dilution						Run: ICPMS206-B_170217A		02/17/17 18:28
Antimony		ND	mg/L	0.0010						10
Arsenic		ND	mg/L	0.0029						10
Barium		0.176	mg/L	0.050					2.7	10
Beryllium		ND	mg/L	0.0010						10
Cadmium		ND	mg/L	0.0010						10
Chromium		ND	mg/L	0.0050						10
Copper		0.00343	mg/L	0.0050					10	N
Nickel		ND	mg/L	0.0050					10	
Selenium		0.0113	mg/L	0.0085					10	N
<b>Lab ID:</b> B17020841-008APDS1	9	Post Digestion/Distillation Spike						Run: ICPMS206-B_170217A		02/17/17 18:31
Antimony		0.216	mg/L	0.0010	86	75	125			
Arsenic		0.235	mg/L	0.0010	93	75	125			
Barium		0.408	mg/L	0.050	95	75	125			
Beryllium		0.232	mg/L	0.0010	93	75	125			
Cadmium		0.227	mg/L	0.0010	91	75	125			
Chromium		0.249	mg/L	0.0050	100	75	125			
Copper		0.224	mg/L	0.0050	89	75	125			
Nickel		0.226	mg/L	0.0050	90	75	125			
Selenium		0.231	mg/L	0.0017	91	75	125			
<b>Lab ID:</b> B17020841-008AMS3	9	Sample Matrix Spike						Run: ICPMS206-B_170217A		02/17/17 18:34
Antimony		0.465	mg/L	0.0010	93	75	125			
Arsenic		0.488	mg/L	0.0010	97	75	125			
Barium		5.35	mg/L	0.050	94	75	125			
Beryllium		0.234	mg/L	0.0010	94	75	125			
Cadmium		0.236	mg/L	0.0010	94	75	125			
Chromium		0.500	mg/L	0.0050	100	75	125			
Copper		0.451	mg/L	0.0050	90	75	125			
Nickel		0.467	mg/L	0.0050	93	75	125			
Selenium		0.470	mg/L	0.0017	93	75	125			
<b>Lab ID:</b> B17020841-008AMSD	9	Sample Matrix Spike Duplicate						Run: ICPMS206-B_170217A		02/17/17 18:38
Antimony		0.475	mg/L	0.0010	95	75	125	2.0		20
Arsenic		0.512	mg/L	0.0010	102	75	125	4.7		20

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020										Batch: 106736
<b>Lab ID:</b> B17020841-008AMSD	9	Sample Matrix Spike Duplicate						Run: ICPMS206-B_170217A		02/17/17 18:38
Barium		5.40	mg/L	0.050	95	75	125	0.8		20
Beryllium		0.247	mg/L	0.0010	99	75	125	5.5		20
Cadmium		0.239	mg/L	0.0010	96	75	125	1.3		20
Chromium		0.522	mg/L	0.0050	104	75	125	4.4		20
Copper		0.468	mg/L	0.0050	93	75	125	3.8		20
Nickel		0.489	mg/L	0.0050	98	75	125	4.5		20
Selenium		0.473	mg/L	0.0017	94	75	125	0.8		20
<b>Method:</b> SW6020										Batch: 106769
<b>Lab ID:</b> MB-106769	9	Method Blank						Run: ICPMS206-B_170217A		02/17/17 19:31
Antimony		ND	mg/L	0.00008						
Arsenic		ND	mg/L	0.0002						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.00006						
Cadmium		ND	mg/L	0.00006						
Chromium		0.0005	mg/L	0.0003						
Copper		ND	mg/L	0.0003						
Nickel		ND	mg/L	0.0003						
Selenium		0.0010	mg/L	0.0007						
<b>Lab ID:</b> B17020841-018ADIL	9	Serial Dilution						Run: ICPMS206-B_170217A		02/17/17 19:38
Antimony		ND	mg/L	0.0010						10
Arsenic		ND	mg/L	0.0029						10
Barium		0.0163	mg/L	0.050						10 N
Beryllium		ND	mg/L	0.0010						10
Cadmium		ND	mg/L	0.0010						10
Chromium		ND	mg/L	0.0050						10
Copper		ND	mg/L	0.0050						10
Nickel		ND	mg/L	0.0050						10
Selenium		0.00905	mg/L	0.0085						10 N
<b>Lab ID:</b> LCS-106769	9	Laboratory Control Sample						Run: ICPMS206-B_170217A		02/17/17 19:55
Antimony		0.492	mg/L	0.0010	98	80	120			
Arsenic		0.478	mg/L	0.0010	96	80	120			
Barium		5.51	mg/L	0.0010	100	80	120			
Beryllium		0.248	mg/L	0.010	99	80	120			
Cadmium		0.241	mg/L	0.0050	96	80	120			
Chromium		0.529	mg/L	0.0010	106	80	120			
Copper		0.467	mg/L	0.0010	93	80	120			
Nickel		0.486	mg/L	0.0010	97	80	120			
Selenium		0.480	mg/L	0.0010	96	80	120			
<b>Lab ID:</b> B17020841-018APDS1	9	Post Digestion/Distillation Spike						Run: ICPMS206-B_170217A		02/17/17 19:58
Antimony		0.233	mg/L	0.0010	93	75	125			
Arsenic		0.231	mg/L	0.0010	92	75	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020										Batch: 106769
<b>Lab ID:</b> B17020841-018APDS1	9	Post Digestion/Distillation Spike								Run: ICPMS206-B_170217A 02/17/17 19:58
Barium		0.254	mg/L	0.050	95	75	125			
Beryllium		0.230	mg/L	0.0010	92	75	125			
Cadmium		0.231	mg/L	0.0010	93	75	125			
Chromium		0.249	mg/L	0.0050	100	75	125			
Copper		0.235	mg/L	0.0050	93	75	125			
Nickel		0.231	mg/L	0.0050	92	75	125			
Selenium		0.238	mg/L	0.0017	94	75	125			
<b>Lab ID:</b> B17020841-018AMS3	9	Sample Matrix Spike								Run: ICPMS206-B_170217A 02/17/17 20:01
Antimony		0.481	mg/L	0.0010	96	75	125			
Arsenic		0.498	mg/L	0.0010	99	75	125			
Barium		5.30	mg/L	0.050	96	75	125			
Beryllium		0.252	mg/L	0.0010	101	75	125			
Cadmium		0.247	mg/L	0.0010	99	75	125			
Chromium		0.522	mg/L	0.0050	104	75	125			
Copper		0.476	mg/L	0.0050	94	75	125			
Nickel		0.487	mg/L	0.0050	97	75	125			
Selenium		0.496	mg/L	0.0017	99	75	125			
<b>Lab ID:</b> B17020841-018AMSD	9	Sample Matrix Spike Duplicate								Run: ICPMS206-B_170217A 02/17/17 20:05
Antimony		0.482	mg/L	0.0010	96	75	125	0.2	20	
Arsenic		0.499	mg/L	0.0010	100	75	125	0.3	20	
Barium		5.30	mg/L	0.050	96	75	125	0.1	20	
Beryllium		0.244	mg/L	0.0010	98	75	125	3.1	20	
Cadmium		0.239	mg/L	0.0010	96	75	125	3.2	20	
Chromium		0.515	mg/L	0.0050	103	75	125	1.4	20	
Copper		0.474	mg/L	0.0050	94	75	125	0.4	20	
Nickel		0.484	mg/L	0.0050	97	75	125	0.6	20	
Selenium		0.491	mg/L	0.0017	98	75	125	1.0	20	
<b>Lab ID:</b> B17020841-019CDIL	9	Serial Dilution								Run: ICPMS206-B_170217A 02/17/17 20:21
Antimony		ND	mg/L	0.019						10
Arsenic		0.333	mg/L	0.058						10 N
Barium		4.29	mg/L	0.050				3.9	10	
Beryllium		0.640	mg/L	0.014				13	10 R	
Cadmium		5.36	mg/L	0.015				7.3	10	
Chromium		0.0840	mg/L	0.068						10 N
Copper		134	mg/L	0.068				6.8	10	
Nickel		9.54	mg/L	0.074				3.0	10	
Selenium		0.452	mg/L	0.17						10 N
<b>Lab ID:</b> B17020841-019CPDS	9	Post Digestion/Distillation Spike								Run: ICPMS206-B_170217A 02/17/17 20:41
Antimony		3.84	mg/L	0.0038	77	75	125			
Arsenic		5.35	mg/L	0.012	105	75	125			
Barium		8.03	mg/L	0.050	78	75	125			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

R - RPD exceeds advisory limit.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b>	<b>SW6020</b>									Batch: 106769
<b>Lab ID:</b>	<b>B17020841-019CPDS</b>	9	Post Digestion/Distillation Spike					Run: ICPMS206-B_170217A		02/17/17 20:41
Beryllium		5.26	mg/L	0.0029	91	75	125			
Cadmium		8.91	mg/L	0.0029	79	75	125			
Chromium		5.22	mg/L	0.014	105	75	125			
Copper		133	mg/L	0.014		75	125			A
Nickel		14.0	mg/L	0.015	84	75	125			
Selenium		4.98	mg/L	0.034	92	75	125			

### Qualifiers:

RL - Analyte reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020								Analytical Run: ICPMS206-B_170221A		
<b>Lab ID:</b> QCS	6	Initial Calibration Verification Standard								02/21/17 11:04
Antimony		0.0495	mg/L	0.0010	99	90	110			
Arsenic		0.0506	mg/L	0.0010	101	90	110			
Chromium		0.0508	mg/L	0.0010	102	90	110			
Copper		0.0520	mg/L	0.0010	104	90	110			
Nickel		0.0503	mg/L	0.0010	101	90	110			
Selenium		0.0512	mg/L	0.0010	102	90	110			
<b>Lab ID:</b> ICSA	6	Interference Check Sample A								02/21/17 11:31
Antimony		-0.0000921	mg/L	0.0010						
Arsenic		0.0000303	mg/L	0.0010						
Chromium		0.000850	mg/L	0.0010						
Copper		0.000264	mg/L	0.0010						
Nickel		0.000533	mg/L	0.0010						
Selenium		0.0000976	mg/L	0.0010						
<b>Lab ID:</b> ICSAB	6	Interference Check Sample AB								02/21/17 11:34
Antimony		-0.000107	mg/L	0.0010		0	0			
Arsenic		0.0100	mg/L	0.0010	100	70	130			
Chromium		0.0206	mg/L	0.0010	103	70	130			
Copper		0.0201	mg/L	0.0010	101	70	130			
Nickel		0.0203	mg/L	0.0010	102	70	130			
Selenium		0.00999	mg/L	0.0010	100	70	130			
<b>Method:</b> SW6020								Batch: 106736		
<b>Lab ID:</b> MB-106736	9	Method Blank								Run: ICPMS206-B_170221A 02/21/17 17:47
Antimony		0.00007	mg/L	0.00004						
Arsenic		ND	mg/L	0.0001						
Barium		ND	mg/L	0.00008						
Beryllium		ND	mg/L	0.00003						
Cadmium		ND	mg/L	0.00003						
Chromium		0.006	mg/L	0.0001						
Copper		0.0003	mg/L	0.0001						
Nickel		0.001	mg/L	0.0001						
Selenium		ND	mg/L	0.0003						
<b>Lab ID:</b> LCS-106736	9	Laboratory Control Sample								Run: ICPMS206-B_170221A 02/21/17 18:00
Antimony		0.493	mg/L	0.0010	99	80	120			
Arsenic		0.488	mg/L	0.0010	98	80	120			
Barium		5.40	mg/L	0.0010	98	80	120			
Beryllium		0.232	mg/L	0.010	93	80	120			
Cadmium		0.254	mg/L	0.0050	102	80	120			
Chromium		0.496	mg/L	0.0010	98	80	120			
Copper		0.487	mg/L	0.0010	97	80	120			
Nickel		0.487	mg/L	0.0010	97	80	120			
Selenium		0.465	mg/L	0.0010	93	80	120			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b>	<b>SW6020</b>									Batch: 106736
<b>Lab ID:</b>	<b>LCS-106736</b>	9 Laboratory Control Sample					Run: ICPMS206-B_170221A		02/21/17 18:00	
<b>Lab ID:</b>	<b>B17020841-008ADIL</b>	9 Serial Dilution					Run: ICPMS206-B_170221A		02/21/17 18:43	
Antimony		ND	mg/L	0.0010						10
Arsenic		ND	mg/L	0.0029						10
Barium		0.198	mg/L	0.050				5.4		10
Beryllium		ND	mg/L	0.0010						10
Cadmium		ND	mg/L	0.0010						10
Chromium		ND	mg/L	0.0050						10
Copper		0.00477	mg/L	0.0050					10	N
Nickel		ND	mg/L	0.0050						10
Selenium		ND	mg/L	0.0085						10
<b>Lab ID:</b>	<b>B17020841-008APDS1</b>	9 Post Digestion/Distillation Spike					Run: ICPMS206-B_170221A		02/21/17 18:47	
Antimony		0.232	mg/L	0.0010	93	75	125			
Arsenic		0.233	mg/L	0.0010	93	75	125			
Barium		0.421	mg/L	0.050	93	75	125			
Beryllium		0.223	mg/L	0.0010	89	75	125			
Cadmium		0.228	mg/L	0.0010	91	75	125			
Chromium		0.234	mg/L	0.0050	93	75	125			
Copper		0.223	mg/L	0.0050	89	75	125			
Nickel		0.219	mg/L	0.0050	87	75	125			
Selenium		0.224	mg/L	0.0017	90	75	125			
<b>Lab ID:</b>	<b>B17020841-008AMS3</b>	9 Sample Matrix Spike					Run: ICPMS206-B_170221A		02/21/17 18:50	
Antimony		0.526	mg/L	0.0010	105	75	125			
Arsenic		0.530	mg/L	0.0010	106	75	125			
Barium		5.90	mg/L	0.050	104	75	125			
Beryllium		0.248	mg/L	0.0010	99	75	125			
Cadmium		0.257	mg/L	0.0010	103	75	125			
Chromium		0.510	mg/L	0.0050	102	75	125			
Copper		0.489	mg/L	0.0050	97	75	125			
Nickel		0.489	mg/L	0.0050	98	75	125			
Selenium		0.505	mg/L	0.0017	101	75	125			
<b>Lab ID:</b>	<b>B17020841-008AMSD</b>	9 Sample Matrix Spike Duplicate					Run: ICPMS206-B_170221A		02/21/17 18:53	
Antimony		0.520	mg/L	0.0010	104	75	125	1.1		20
Arsenic		0.500	mg/L	0.0010	100	75	125	5.6		20
Barium		5.75	mg/L	0.050	101	75	125	2.7		20
Beryllium		0.228	mg/L	0.0010	91	75	125	8.4		20
Cadmium		0.251	mg/L	0.0010	100	75	125	2.5		20
Chromium		0.494	mg/L	0.0050	99	75	125	3.0		20
Copper		0.471	mg/L	0.0050	94	75	125	3.8		20
Nickel		0.471	mg/L	0.0050	94	75	125	3.7		20
Selenium		0.485	mg/L	0.0017	97	75	125	4.2		20

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW6020										Batch: 106742
<b>Lab ID:</b> MB-106742	4	Method Blank						Run: ICPMS206-B_170221A		02/21/17 19:47
Arsenic		ND	mg/L	0.0001						
Chromium		0.0010	mg/L	0.0001						
Copper		0.008	mg/L	0.0001						
Nickel		0.0003	mg/L	0.0001						
<b>Lab ID:</b> LCS-106742	4	Laboratory Control Sample				Run: ICPMS206-B_170221A				02/21/17 19:50
Arsenic		0.477	mg/L	0.0010	95	80	120			
Chromium		0.495	mg/L	0.0010	99	80	120			
Copper		0.481	mg/L	0.0010	95	80	120			
Nickel		0.480	mg/L	0.0010	96	80	120			
<b>Lab ID:</b> B17020841-018ADIL	4	Serial Dilution				Run: ICPMS206-B_170221A				02/21/17 20:10
Arsenic		ND	mg/L	0.0012						10
Chromium		ND	mg/L	0.0050						10
Copper		0.00424	mg/L	0.0050						10 N
Nickel		0.00176	mg/L	0.0050						10 N
<b>Lab ID:</b> B17020841-018APDS1	4	Post Digestion/Distillation Spike				Run: ICPMS206-B_170221A				02/21/17 20:14
Arsenic		0.0971	mg/L	0.0010	96	75	125			
Chromium		0.0956	mg/L	0.0050	95	75	125			
Copper		0.0957	mg/L	0.0050	93	75	125			
Nickel		0.0902	mg/L	0.0050	89	75	125			
<b>Lab ID:</b> B17020841-018AMS3	4	Sample Matrix Spike				Run: ICPMS206-B_170221A				02/21/17 20:17
Arsenic		0.504	mg/L	0.0010	101	75	125			
Chromium		0.495	mg/L	0.0050	99	75	125			
Copper		0.480	mg/L	0.0050	95	75	125			
Nickel		0.475	mg/L	0.0050	95	75	125			
<b>Lab ID:</b> B17020841-018AMSD	4	Sample Matrix Spike Duplicate				Run: ICPMS206-B_170221A				02/21/17 20:20
Arsenic		0.501	mg/L	0.0010	100	75	125	0.6	20	
Chromium		0.497	mg/L	0.0050	99	75	125	0.4	20	
Copper		0.475	mg/L	0.0050	94	75	125	1.0	20	
Nickel		0.481	mg/L	0.0050	96	75	125	1.3	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW7470A										Analytical Run: HGCV202-B_170215A
<b>Lab ID:</b> ICV										02/15/17 14:08
Mercury		0.00201	mg/L		0.00010	101	90	110		
<b>Method:</b> SW7470A										Batch: 106730
<b>Lab ID:</b> MB-106730										02/15/17 14:48
Mercury		ND	mg/L		6E-06					
<b>Lab ID:</b> LCS-106730										02/15/17 14:50
Mercury		0.00201	mg/L		0.00010	100	80	120		
<b>Lab ID:</b> B17020841-020CDIL										02/15/17 15:40
Mercury		0.0763	mg/L		0.012		0	0	3.5	10
<b>Lab ID:</b> B17020841-020CMS										02/15/17 15:42
Mercury		0.104	mg/L		0.0025		75	125		A
<b>Lab ID:</b> B17020841-020CMSD										02/15/17 15:44
Mercury		0.104	mg/L		0.0025		75	125	0.7	20
<b>Method:</b> SW7470A										Analytical Run: HGCV202-B_170217A
<b>Lab ID:</b> ICV										02/17/17 00:00
Mercury		0.00201	mg/L		0.00010	101	90	110		
<b>Method:</b> SW7470A										Batch: 106773
<b>Lab ID:</b> MB-106773										02/17/17 12:57
Mercury		0.00001	mg/L		6E-06					
<b>Lab ID:</b> LCS-106773										02/17/17 12:59
Mercury		0.00200	mg/L		0.00010	100	80	120		
<b>Lab ID:</b> B17020841-018ADIL										02/17/17 13:08
Mercury		0.0000595	mg/L		0.00025		0	0		10
<b>Lab ID:</b> B17020841-018AMS										02/17/17 13:10
Mercury		0.00177	mg/L		0.00010	88	75	125		
<b>Lab ID:</b> B17020841-018AMSD										02/17/17 13:12
Mercury		0.00174	mg/L		0.00010	86	75	125	1.7	20

**Qualifiers:**

RL - Analyte reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW8260B										Batch: R275070
<b>Lab ID:</b> lcs021717	10	Laboratory Control Sample								Run: 5971A.I_170217A
Benzene		4.72	ug/L	0.50	94	71	133			02/17/17 09:37
Bromodichloromethane		4.44	ug/L	0.50	89	67	138			
Bromoform		4.36	ug/L	0.50	87	64	136			
Chlorodibromomethane		4.52	ug/L	0.50	90	72	136			
Chloroform		4.20	ug/L	0.50	84	69	133			
1,2-Dichloroethane		3.58	ug/L	0.50	72	57	146			
Surr: 1,2-Dichloroethane-d4				0.50	80	70	130			
Surr: Dibromofluoromethane				0.50	86	77	126			
Surr: p-Bromofluorobenzene				0.50	92	76	127			
Surr: Toluene-d8				0.50	99	79	122			
<b>Lab ID:</b> blk021717	10	Method Blank								Run: 5971A.I_170217A
Benzene		ND	ug/L	0.50						02/17/17 10:07
Bromodichloromethane		ND	ug/L	0.50						
Bromoform		ND	ug/L	0.50						
Chlorodibromomethane		ND	ug/L	0.50						
Chloroform		ND	ug/L	0.50						
1,2-Dichloroethane		ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4				0.50	73	70	130			
Surr: Dibromofluoromethane				0.50	83	77	126			
Surr: p-Bromofluorobenzene				0.50	94	76	127			
Surr: Toluene-d8				0.50	102	79	122			
<b>Lab ID:</b> b17020841-018bms	10	Sample Matrix Spike								Run: 5971A.I_170217A
Benzene		4.96	ug/L	0.50	99	71	133			02/17/17 20:22
Bromodichloromethane		4.44	ug/L	0.50	89	67	138			
Bromoform		4.36	ug/L	0.50	87	64	136			
Chlorodibromomethane		4.40	ug/L	0.50	88	72	136			
Chloroform		4.44	ug/L	0.50	89	69	133			
1,2-Dichloroethane		3.76	ug/L	0.50	75	57	146			
Surr: 1,2-Dichloroethane-d4				0.50	82	70	130			
Surr: Dibromofluoromethane				0.50	89	77	126			
Surr: p-Bromofluorobenzene				0.50	94	76	127			
Surr: Toluene-d8				0.50	98	79	122			
<b>Lab ID:</b> b17020841-018bmsd	10	Sample Matrix Spike Duplicate								Run: 5971A.I_170217A
Benzene		4.84	ug/L	0.50	97	71	133	2.4	20	02/17/17 20:51
Bromodichloromethane		4.36	ug/L	0.50	87	67	138	1.8	20	
Bromoform		4.32	ug/L	0.50	86	64	136	0.9	20	
Chlorodibromomethane		4.56	ug/L	0.50	91	72	136	3.6	20	
Chloroform		4.36	ug/L	0.50	87	69	133	1.8	20	
1,2-Dichloroethane		3.65	ug/L	0.50	73	57	146	3.0	20	
Surr: 1,2-Dichloroethane-d4				0.50	83	70	130			
Surr: Dibromofluoromethane				0.50	88	77	126			
Surr: p-Bromofluorobenzene				0.50	94	76	127			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

## QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** ESE Partners

**Report Date:** 02/24/17

**Project:** 15-0342

**Work Order:** B17020841

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> SW8260B										
<b>Lab ID:</b> b17020841-018bmsd	10 Sample Matrix Spike Duplicate					Run: 5971A.I_170217A			02/17/17 20:51	
			Surr: Toluene-d8	0.50	101	79	122			
<b>Method:</b> SW8260B										
<b>Lab ID:</b> lcs022117	Laboratory Control Sample					Run: 5971A.I_170221A			02/21/17 11:00	
Benzene		4.92	ug/L	0.50	98	71	133			
<b>Lab ID:</b> blk022117	Method Blank					Run: 5971A.I_170221A			02/21/17 11:58	
Benzene		ND	ug/L	0.50						
<b>Lab ID:</b> b17021090-001hms	Sample Matrix Spike					Run: 5971A.I_170221A			02/21/17 14:25	
Benzene		4.44	ug/L	0.50	89	71	133			
<b>Lab ID:</b> b17021090-001hmsd	Sample Matrix Spike Duplicate					Run: 5971A.I_170221A			02/21/17 14:54	
Benzene		4.64	ug/L	0.50	93	71	133	4.4	20	

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# Work Order Receipt Checklist

**ESE Partners**
**B17020841**

Login completed by: Tabitha Edwards

Date Received: 2/14/2017

Reviewed by: BL2000\cindy

Received by: qej

Reviewed Date: 2/20/2017

Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

---

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

---

## Contact and Corrective Action Comments:

The Temperature Blank temperature for Cooler 1 was 2.4°C, Cooler 2 was 2.0°C, Cooler 3 was 5.6°C and Cooler 4 was 2.9°C.

Containers were not received for sample MW-25M however containers with no identification were received. The containers with no identification are sample MW-25M per Wynn Pippin, Energy Laboratories Project Manager.

Two out of three VOA vials for MW-32S was received for Volatile Organics analysis containing headspace gas bubbles greater than 1/4 Inch in diameter. There is sufficient volume to continue with analysis using remaining vial.

The Trip Blank was received broken.

An amended Chain of Custody was received on 02/16/2017.



## **Chain of Custody & Analytical Request Record**

[www.energylab.com](http://www.energylab.com)

Page 1 of 3

**Account Information** (*Billing information*)

Company/Name		ESE Partners, LLC
Contact	Aaron Varnell, Aaron Munsart	
Phone	(281) 501-6100	
Mailing Address	19416 Park Row, Suite 120	
City, State, Zip	Houston, TX 77084	
Email	aaron@esepartners.com, amunsart@esepartners.com	
Receive Invoice	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	<input type="checkbox"/> Receive Report <input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email
Purchase Order	Quote	Bottle Order

**Report Information** (*If different than Account Information*)

Company/Name
Contact
Phone
Mailing Address
City, State, Zip
Email
Receive Report <input type="checkbox"/> Hard Copy <input type="checkbox"/> Email
Special Report/Formats: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other _____

### **Comments**

Metals: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Mercury, Nickel, Selenium

VOCs: Benzene, Chloroform,  
Bromodichloromethane,  
1,2-DCE,  
Chlorodibromomethane,  
Bromoform

## Project Information

Project Name, PWSID, Permit, etc. 15-0342	
Sampler Name Aaron Varnell	Sampler Phone (336) 817-1122
Sample Origin State Texas	EPA/State Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MINING CLIENTS, please indicate sample type. *If one has been processed or refined, call before sending.	
<input type="checkbox"/> Byproduct 11 (e)2 material <input type="checkbox"/> Unprocessed ore (NOT ground or refined)*	

<b>Custody Record MUST be signed</b>	Relinquished by (print) <i>Aaron Vowell</i>	Date/Time	Signature	Received by (print)	Date/Time	Signature			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature			
<b>LABORATORY USE ONLY</b>									
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On ice Y N	Payment Type CC Cash Check _____	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.



Trust our People. Trust our Data.

# Chain of Custody & Analytical Request Record

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Page 2 of 3
**Account Information (Billing information)**

Company/Name ESE Partners, LLC		
Contact	Aaron Varnell, Aaron Munsart	
Phone	(281) 501-6100	
Mailing Address 19416 Park Row, Suite 120		
City, State, Zip Houston, TX 77084		
Email	aaron@esepartners.com, amunsart@esepartners.com	
Receive Invoice	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	
Receive Report	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	
Purchase Order	Quote	Bottle Order

**Report Information (if different than Account Information)**

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	<input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email
Special Report/Formats:	<input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other _____

**Comments**

Metals: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Mercury, Nickel, Selenium

VOCs: Benzene, Chloroform, Bromodichloromethane, 1,2-DCE, Chlorodibromomethane, Bromoform

**Project Information**

Project Name, PWSID, Permit, etc. 15-0342	
Sampler Name Aaron Varnell	Sampler Phone (336) 817-1122
Sample Origin State Texas	EPA/State Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MINING CLIENTS, please indicate sample type. If ore has been processed or refined, call before sending. <input type="checkbox"/> Byproduct 1 (e2 material) <input type="checkbox"/> Unprocessed ore (NOT ground or refined)*	

**Matrix Codes**

A - Air  
W - Water  
S - Soils/  
Solids  
V - Vegetation  
B - Bioassay  
O - Other  
DW - Drinking  
Water

**Analysis Requested**

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	Metals (see comments)	VOCs (see comments)									See Attached	RUSH TAT	ELI LAB ID Laboratory Use Only
	Date	Time															
1 MW-24M	2/8/17	8:52 am		W	✓	✓											817020841-011
2 MW-24D	2/7/17	3:25 pm		W	✓	✓											012
3 MW-25S	2/8/17	10:55 am		W	✓	✓											013
4 MW-25M	2/8/17	11:10 am		W	✓	✓											014
5 MW-25D	2/8/17	10:32 am		W	✓	✓											015
6 FD-01	2/8/17			W	✓	✓											016
7 FD-02	2/8/17			W	✓	✓											017
8 MS/MSD				W	✓	✓											018
9 Trip Blank				W		✓											Received Blank
10 NDC-1	2/8/17	4:06 pm		W	✓	✓											019

Custody Record MUST be signed	Relinquished by (print) <i>Aaron Varnell</i>	Date/Time	Signature	Received by (print) <i>Aaron Varnell</i>	Date/Time 2/14/17 09:15	Signature				
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature				
<b>LABORATORY USE ONLY</b>										
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	CC	Payment Type Cash Check	Amount \$	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.  
This serves as notice of this possibility. All subcontracted data will be clearly noted on your analytical report.



# Chain of Custody & Analytical Request Record

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Page 3 of 3

## Account Information (Billing information)

Company/Name ESE Partners, LLC	
Contact Aaron Varnell, Aaron Munsart	
Phone (281) 501-6100	
Mailing Address 19416 Park Row, Suite 120	
City, State, Zip Houston, TX 77084	
Email aaron@esepartners.com, amunsart@esepartners.com	
Receive Invoice <input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email	Receive Report <input type="checkbox"/> Hard Copy <input checked="" type="checkbox"/> Email
Purchase Order	Quote
Bottle Order	

## Report Information (if different than Account Information)

Company/Name
Contact
Phone
Mailing Address
City, State, Zip
Email
Receive Report <input type="checkbox"/> Hard Copy <input type="checkbox"/> Email
Special Report/Formats: <input type="checkbox"/> LEVEL IV <input type="checkbox"/> NELAC <input type="checkbox"/> EDD/EDT (contact laboratory) <input type="checkbox"/> Other _____

## Comments

Metals: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Mercury, Nickel, Selenium

VOCs: Benzene, Chloroform, Bromodichloromethane, 1,2-DCE, Chlorodibromomethane, Bromoform

## Project Information

Project Name, PWSID, Permit, etc. 15-0342	
Sampler Name Aaron Varnell	Sampler Phone (336) 817-1122
Sample Origin State Texas	EPA/State Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MINING CLIENTS, please indicate sample type. *If ore has been processed or refined, call before sending.	
<input type="checkbox"/> Byproduct 11 (e2) material	<input type="checkbox"/> Unprocessed ore (NOT ground or refined)*

	Analysis Requested									
	Matrix Codes		Number of Containers	Matrix (See Codes Above)	Metals (see comments)	VOCs (see comments)				
A - Air	W - Water	S - Soils/ Solids								
1 NDC-2	2/9/17	9:08 am	W	✓	✓					
2			W							
3			W							
4			W							
5			W							
6			W							
7			W							
8			W							
9			W							
10			W							
<b>See Attached</b>	RUSH TAT	<b>ELI LAB ID</b> Laboratory Use Only								
<b>B17020841-020</b>										

Custody Record MUST be signed	Relinquished by (print) <i>Aaron Varnell</i>	Date/Time	Signature	Received by (print) <i>Aaron Varnell</i>	Date/Time	Signature			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature			
<b>LABORATORY USE ONLY</b>									
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

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**ATTACHMENT 5**  
**WELL INSPECTION REPORTS**

**FORM OMM-5****WELL INSPECTION FORM****(FIELD FORM)**Project Name Tex Tin Operations and Maintenance Date 2/8/2017Project No. 15-0342 Inspected by AMWell ID(s): MW-22S, MW-22M, MW-22D

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°Are protective posts present at this well or well nest? Yes Y No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 3How many protective posts are present around this well or well nest? 6

Protective Posts	YES/NO	NOTES IF YES
• Are all protective posts present around the well(s)?	<u>Y</u>	
• Are the posts in good condition?	<u>Y</u>	Note: Post between MW-22S & MW-22M is loose but still structurally sound.

**Completion Pad**

• Are cracks or holes visible in the well pad(s)?	<u>Y</u>	MW-22D has a large crack through the center of the pad but still structurally sound.
• Is the well(s) overgrown with vegetation?	<u>N</u>	
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	
• Does the well pad(s) need replacement?	<u>N</u>	

**Metal Protective Casing**

• Is the metal protective casing(s) damaged or missing?	<u>Y</u>	MW-22S; top of protective casing missing.
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	



**FORM OMM-5 (cont'd)**  
**WELL INSPECTION FORM**  
**(FIELD FORM)**

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<input type="checkbox"/> Y <input type="checkbox"/> N	MW-22S; lock missing. MW-22S; damaged, able to be opened.
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N	

NOTES:

MW-22S missing metal protective casing and lock with a damaged well cap.

**Recommended Action:**

Cut down PVC casing, replace well cap, lock, and metal cap.

Signed

A handwritten signature in blue ink, appearing to read "John Smith".

Date 3/15/2017

**FORM OMM-5****WELL INSPECTION FORM****(FIELD FORM)**Project Name Tex Tin Operations and Maintenance Date 2/8/2017Project No. 15-0342 Inspected by AVWell ID(s): MW-23S, MW-23M, MW-23D

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°Are protective posts present at this well or well nest? Yes Y No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 3How many protective posts are present around this well or well nest? 6

<b>Protective Posts</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
• Are all protective posts present around the well(s)?	<u>Y</u>	
• Are the posts in good condition?	<u>Y</u>	

<b>Completion Pad</b>		
• Are cracks or holes visible in the well pad(s)?	<u>Y</u>	MW-23S has several cracks throughout the well pad.
• Is the well(s) overgrown with vegetation?	<u>N</u>	
• Is there any indication that the well pad(s) has shifted from its original position?	<u>Y</u>	MW-23S shifted vertically approx. 1ft, PVC remains intact, Well integrity not damaged.
• Does the well pad(s) need replacement?	<u>N</u>	

<b>Metal Protective Casing</b>		
• Is the metal protective casing(s) damaged or missing?	<u>N</u>	
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	



**FORM OMM-5 (cont'd)**  
**WELL INSPECTION FORM**  
**(FIELD FORM)**

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<u>N</u> <u>N</u>	
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<u>N</u> <u>N</u> <u>N</u> <u>Y</u>	
		MW-23S PVC casing is bent.

NOTES:

**Recommended Action:**

MW-23S needs to be re-surveyed.

Signed

A handwritten signature in blue ink, appearing to read "Eric Miller".

Date 3/15/2017



## FORM OMM-5

### WELL INSPECTION FORM

#### (FIELD FORM)

Project Name Tex Tin Operations and Maintenance Date 2/8/2017

Project No. 15-0342 Inspected by AM & AV

Well ID(s): MW-24S, MW-24M, MW-24D

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°

Are protective posts present at this well or well nest? Yes X No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 3

How many protective posts are present around this well or well nest? 3

Protective Posts	YES/NO	NOTES IF YES
• Are all protective posts present around the well(s)?	<u>Y</u>	_____
• Are the posts in good condition?	<u>Y</u>	_____

Completion Pad		
• Are cracks or holes visible in the well pad(s)?	<u>N</u>	_____
• Is the well(s) overgrown with vegetation?	<u>N</u>	_____
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	_____
• Does the well pad(s) need replacement?	<u>N</u>	_____

Metal Protective Casing		
• Is the metal protective casing(s) damaged or missing?	<u>N</u>	_____
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	_____
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	_____

#### FORM OMM-5 (cont'd)



## WELL INSPECTION FORM (FIELD FORM)

Lock and Label	YES/NO	NOTES IF YES
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<p>N _____ Y _____</p>	Labels for MW-24D and MW-24S are switched
Well Cap and PVC casing		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<p>N _____ N _____ N _____ N _____</p>	

NOTES:

The labels for MW-24D and MW-24S are switched

### Recommended Action:

Replace MW-24D and MW-24S labels (MW-24D on currently labeled MW-24S and vice versa)

Signed

A handwritten signature in blue ink, appearing to read "John Smith".

Date 3/15/2017



## FORM OMM-5

### WELL INSPECTION FORM

#### (FIELD FORM)

Project Name Tex Tin Operations and Maintenance Date 2/8/2017

Project No. 15-0342 Inspected by AV

Well ID(s): MW-25S, MW-25M, MW-25D

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°

Are protective posts present at this well or well nest? Yes    No X

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 3

How many protective posts are present around this well or well nest? 0

Protective Posts	YES/NO	NOTES IF YES
• Are all protective posts present around the well(s)?	<u>N/A</u>	_____
• Are the posts in good condition?	<u>N/A</u>	_____

#### Completion Pad

• Are cracks or holes visible in the well pad(s)?	<u>N</u>	_____
• Is the well(s) overgrown with vegetation?	<u>N</u>	_____
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	_____
• Does the well pad(s) need replacement?	<u>N</u>	_____

#### Metal Protective Casing

• Is the metal protective casing(s) damaged or missing?	<u>N</u>	_____
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	_____
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	_____

## FORM OMM-5 (cont'd)



## WELL INSPECTION FORM (FIELD FORM)

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<u>N</u> <u>N</u>	_____
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<u>N</u> <u>N</u> <u>N</u> <u>N</u>	_____

### NOTES:

MW-25S, MW-25M, and MW-25D are flush mounted; therefore, protective posts around the well are not necessary.

### Recommended Action:

None

Signed

A handwritten signature in blue ink, appearing to read "Erin Teller".

Date 3/15/2017

**FORM OMM-5****WELL INSPECTION FORM  
(FIELD FORM)**

Project Name Tex Tin Operations and Maintenance Date 2/9/2017  
Project No. 15-0342 Inspected by AV

Well ID(s): MW-32S, MW-32M  
(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°

Are protective posts present at this well or well nest? Yes Y No         
(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 2  
How many protective posts are present around this well or well nest? 6

<b>Protective Posts</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
• Are all protective posts present around the well(s)?	<u>Y</u>	
• Are the posts in good condition?	<u>Y</u>	

<b>Completion Pad</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
• Are cracks or holes visible in the well pad(s)?	<u>N</u>	
• Is the well(s) overgrown with vegetation?	<u>N</u>	Note: Weeds are getting close to becoming overgrown.
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	
• Does the well pad(s) need replacement?	<u>N</u>	

<b>Metal Protective Casing</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
• Is the metal protective casing(s) damaged or missing?	<u>N</u>	
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	



**FORM OMM-5 (cont'd)**  
**WELL INSPECTION FORM**  
**(FIELD FORM)**

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<u>N</u> <u>N</u>	_____
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<u>N</u> <u>N</u> <u>N</u> <u>N</u>	_____

NOTES:

**Recommended Action:**

Weed-eat and clean around these wells.

Signed

A handwritten signature in blue ink, appearing to read "John [illegible]".

Date 3/15/2017



## FORM OMM-5

### WELL INSPECTION FORM

#### (FIELD FORM)

Project Name Tex Tin Operations and Maintenance Date 2/8/2017

Project No. 15-0342 Inspected by AV

Well ID(s): MW-58S, MW-58M, MW-58D, MW-8S, MW-8M

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°

Are protective posts present at this well or well nest? Yes X No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 5

How many protective posts are present around this well or well nest? 16

Protective Posts	YES/NO	NOTES IF YES
• Are all protective posts present around the well(s)?	<u>Y</u>	_____
• Are the posts in good condition?	<u>Y</u>	_____

#### Completion Pad

• Are cracks or holes visible in the well pad(s)?	<u>N</u>	_____
• Is the well(s) overgrown with vegetation?	<u>Y</u>	<u>MW-8S is overgrown with tall weeds.</u>
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	_____
• Does the well pad(s) need replacement?	<u>N</u>	_____

#### Metal Protective Casing

• Is the metal protective casing(s) damaged or missing?	<u>N</u>	_____
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	_____
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	_____

### FORM OMM-5 (cont'd)



## WELL INSPECTION FORM (FIELD FORM)

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<input type="checkbox"/> N <input type="checkbox"/> N	Lock on MW-8S is rusted shut.
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N	

NOTES:

**Recommended Action:**

Clear grass around MW-8S. Replace lock on MW-8S.

Signed

A handwritten signature in blue ink, appearing to read "Eric L." followed by a surname.

Date 3/15/2017



## FORM OMM-5

### WELL INSPECTION FORM

#### (FIELD FORM)

Project Name Tex Tin Operations and Maintenance Date 2/7/2017

Project No. 15-0342 Inspected by AM

Well ID(s): MW-59S, MW-59M, MW-59D

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°

Are protective posts present at this well or well nest? Yes Y No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 3

How many protective posts are present around this well or well nest? 8

Protective Posts	YES/NO	NOTES IF YES
• Are all protective posts present around the well(s)?	<u>Y</u>	_____
• Are the posts in good condition?	<u>Y</u>	_____

#### Completion Pad

• Are cracks or holes visible in the well pad(s)?	<u>N</u>	_____
• Is the well(s) overgrown with vegetation?	<u>N</u>	_____
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	_____
• Does the well pad(s) need replacement?	<u>N</u>	_____

#### Metal Protective Casing

• Is the metal protective casing(s) damaged or missing?	<u>N</u>	_____
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	_____
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	_____

FORM OMM-5 (cont'd)



## WELL INSPECTION FORM (FIELD FORM)

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<input type="checkbox"/> Y <input type="checkbox"/> N	Lock on MW-59S is difficult to open.
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N	

NOTES:

**Recommended Action:**

Replace lock on MW-59S.

Signed

A handwritten signature in blue ink, appearing to read "John Smith".

Date 3/15/2017

**FORM OMM-5****WELL INSPECTION FORM****(FIELD FORM)**Project Name Tex Tin Operations and Maintenance Date 2/8/2017Project No. 15-0342 Inspected by AVWell ID(s): MW-60S, MW-60M, MW-60D, MW-61S, MW-61M

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°Are protective posts present at this well or well nest? Yes X No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 5How many protective posts are present around this well or well nest? 14

<b>Protective Posts</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
• Are all protective posts present around the well(s)?	<u>Y</u>	_____
• Are the posts in good condition?	<u>Y</u>	_____

**Completion Pad**

• Are cracks or holes visible in the well pad(s)?	<u>N</u>	_____
• Is the well(s) overgrown with vegetation?	<u>N</u>	_____
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	_____
• Does the well pad(s) need replacement?	<u>N</u>	_____

**Metal Protective Casing**

• Is the metal protective casing(s) damaged or missing?	<u>N</u>	_____
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	_____
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	_____

**FORM OMM-5 (cont'd)**



## WELL INSPECTION FORM (FIELD FORM)

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<input type="checkbox"/> Y <input type="checkbox"/> N	The lock on MW-61M is rusted shut and difficult to open.
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N	

NOTES:

**Recommended Action:**

Use bolt cutters to remove and replace lock on MW-61M.

Signed

A handwritten signature in blue ink, appearing to read "John Smith".

Date 3/15/2017

**FORM OMM-5****WELL INSPECTION FORM****(FIELD FORM)**Project Name Tex Tin Operations and Maintenance Date 2/8/2017Project No. 15-0342 Inspected by AMWell ID(s): NDC-1, NDC-2

(One form should be completed for each well nest or individual well if not in a well nest)

Weather Sunny, 80°Are protective posts present at this well or well nest? Yes X No       

(If no, write N/A in each space of the protective post section)

If yes: If a well nest is present, how many wells are there within the nest? 2How many protective posts are present around this well or well nest? 8

<b>Protective Posts</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
• Are all protective posts present around the well(s)?	<u>Y</u>	_____
• Are the posts in good condition?	<u>Y</u>	_____

**Completion Pad**

• Are cracks or holes visible in the well pad(s)?	<u>N</u>	_____
• Is the well(s) overgrown with vegetation?	<u>N</u>	_____
• Is there any indication that the well pad(s) has shifted from its original position?	<u>N</u>	_____
• Does the well pad(s) need replacement?	<u>N</u>	_____

**Metal Protective Casing**

• Is the metal protective casing(s) damaged or missing?	<u>N</u>	_____
• Does the protective casing(s) deny access to the PVC well casing?	<u>N</u>	_____
• Is the hinge on the protective casing(s) damaged?	<u>N</u>	_____

**FORM OMM-5 (cont'd)**



## WELL INSPECTION FORM (FIELD FORM)

<b>Lock and Label</b>	<b>YES/NO</b>	<b>NOTES IF YES</b>
<ul style="list-style-type: none"><li>• Is the lock on the protective casing(s) damaged or missing?</li><li>• Is the label(s) at the well damaged or missing?</li></ul>	<input type="checkbox"/> N <input type="checkbox"/> N	_____
<b>Well Cap and PVC casing</b>		
<ul style="list-style-type: none"><li>• Is the well cap(s) on the PVC well casing damaged or missing?</li><li>• Is there a problem securely fastening the well cap(s) to the PVS casing creating a water-tight seal?</li><li>• Is the PVC casing(s) damaged?</li><li>• Are there indications that the PVC casing(s) may be bent?</li></ul>	<input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N <input type="checkbox"/> N	_____

NOTES:

**Recommended Action:**

None

Signed

A handwritten signature in blue ink, appearing to read "John Smith".

Date 3/15/2017

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**ATTACHMENT 6**  
**MANN KENDALL ANALYSIS**

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

## Mann-Kendall Statistical Test

Form 4400-215 (2/2001)

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Site Name : Textin, Texas City, TX		BRRTS No. =		Well Number = MW-8S				
Event Number	Compound ->	GrossAlphaPart	Ra 226/228					
	Sampling Date (most recent last)	Concentration (leave blank if no data)						
	1	5-Dec-07	6.00	2.13				
	2	2-Dec-08	20.70	1.00				
	3	11-Jan-10	8.50	0.30				
	4	7-Dec-10	5.20	1.54				
	5	23-Jan-12	7.60	0.53				
	6	29-Jan-13	3.20	0.05				
	7	18-Dec-13	8.70	0.27				
	8	9-Dec-14	13.30	0.33				
9	19-Jan-16	12.30	0.76					
10	9-Feb-17	11.30	1.64					
Mann Kendall Statistic (S) =	9.0	-5.0	0.0	0.0	0.0	0.0	0.0	
Number of Rounds (n) =	10	10	0	0	0	0	0	
Average =	9.68	0.86	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Standard Deviation =	5.015	0.700	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Coefficient of Variation(CV)=	0.518	0.818	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4	
Trend ≥ 80% Confidence Level	No Trend	No Trend	n<4	n<4	n<4	n<4		
Trend ≥ 90% Confidence Level	No Trend	No Trend	n<4	n<4	n<4	n<4		
Stability Test, If No Trend Exists at 80% Confidence Level	CV <= 1 STABLE	CV <= 1 STABLE	n<4	n<4	n<4	n<4		
Data Entry By = AM		Date = 23-Mar-17		Checked By = AV				

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

## Mann-Kendall Statistical Test

Form 4400-215 (2/2001)

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Site Name : Textin, Texas City, TX			BRRTS No. =	Well Number = MW-22M				
Event Number	Compound ->	GrossAlphaPart	Ra 226/228	Arsenic				
	Sampling Date (most recent last)	Concentration (leave blank if no data)						
	1	5-Dec-07	4.40	2.47	0.01			
	2	2-Dec-08	11.70	7.84	0.01			
	3	11-Jan-10	31.50	0.65	0.01			
	4	6-Dec-10	2.59	0.65	0.01			
	5	26-Jan-12	22.00	1.08	0.00			
	6	29-Jan-13	22.70	2.59	0.01			
	7	16-Dec-13	14.30	0.33	0.00			
	8	9-Dec-14	45.30	1.85	0.00			
9	20-Jan-16	24.80	1.52	0.01				
10	8-Feb-17	29.70	2.61	0.00				
	Mann Kendall Statistic (S) =	21.0	2.0	-23.0	0.0	0.0	0.0	
	Number of Rounds (n) =	10	10	10	0	0	0	
	Average =	20.90	2.16	0.01	#DIV/0!	#DIV/0!	#DIV/0!	
	Standard Deviation =	13.083	2.168	0.004	#DIV/0!	#DIV/0!	#DIV/0!	
	Coefficient of Variation(CV)=	0.626	1.004	0.625	#DIV/0!	#DIV/0!	#DIV/0!	
Error Check, Blank if No Errors Detected					n<4	n<4	n<4	
Trend ≥ 80% Confidence Level	INCREASING	No Trend	DECREASING	n<4	n<4	n<4		
Trend ≥ 90% Confidence Level	INCREASING	No Trend	DECREASING	n<4	n<4	n<4		
Stability Test, If No Trend Exists at 80% Confidence Level	NA	CV > 1 NON-STABLE	NA	n<4	n<4	n<4		
Data Entry By = AM		Date = 23-Mar-17	Checked By = AV					

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

## Mann-Kendall Statistical Test

Form 4400-215 (2/2001)

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Site Name : Textin, Texas City, TX			BRRTS No. =	Well Number = MW-22S				
Event Number	Compound ->	GrossAlphaPart	Ra 226/228	Arsenic				
	Sampling Date (most recent last)	Concentration (leave blank if no data)						
	1	5-Dec-07	55.10	2.43	0.02			
	2	2-Dec-08	0.40	0.03	0.16			
	3	11-Jan-10	3.80	8.66	0.01			
	4	7-Dec-10	81.10	9.34	0.01			
	5	26-Jan-12	25.00	25.01	0.00			
	6	29-Jan-13	80.50	31.26	0.00			
	7	16-Dec-13	9.10	9.45	0.00			
	8	9-Dec-14	112.00	29.11	0.01			
9	20-Jan-16	83.50	6.90	0.04				
10	8-Feb-17	352.00	20.78	0.01				
	Mann Kendall Statistic (S) =	25.0	19.0	-12.0	0.0	0.0	0.0	
	Number of Rounds (n) =	10	10	10	0	0	0	
	Average =	80.25	14.30	0.03	#DIV/0!	#DIV/0!	#DIV/0!	
	Standard Deviation =	103.191	11.269	0.048	#DIV/0!	#DIV/0!	#DIV/0!	
	Coefficient of Variation(CV)=	1.286	0.788	1.788	#DIV/0!	#DIV/0!	#DIV/0!	
Error Check, Blank if No Errors Detected					n<4	n<4	n<4	
Trend ≥ 80% Confidence Level	INCREASING	INCREASING	DECREASING	n<4	n<4	n<4		
Trend ≥ 90% Confidence Level	INCREASING	INCREASING	No Trend	n<4	n<4	n<4		
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	n<4	n<4	n<4		
Data Entry By = AM		Date = 23-Mar-17		Checked By = AV				

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-23D</b>			
		Compound ->	GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	5.00	3.52				
2	2-Dec-08	10.70	2.04				
3	11-Jan-10	20.70	0.82				
4	6-Dec-10	2.88	1.56				
5	26-Jan-12	13.40	3.79				
6	30-Jan-13	8.40	1.93				
7	17-Dec-13	2.20	1.57				
8	10-Dec-14	10.10	2.58				
9	20-Jan-16	12.70	2.16				
10	8-Feb-17	13.20	0.96				
	Mann Kendall Statistic (S) =	5.0	-5.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	9.93	2.09	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	5.609	0.981	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.565	0.469	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		<b>CV &lt;= 1 STABLE</b>	<b>CV &lt;= 1 STABLE</b>	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>		Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>				BRRTS No. =	Well Number = <b>MW-23M</b>		
		Compound ->	GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	7.00	5.27				
2	2-Dec-08	33.80	5.02				
3	11-Jan-10	21.30	4.39				
4	6-Dec-10	17.40	1.62				
5	26-Jan-12	26.80	5.95				
6	30-Jan-13	17.40	4.82				
7	17-Dec-13	18.20	1.57				
8	10-Dec-14	27.30	3.76				
9	30-Jun-16	20.70	0.60				
10	8-Feb-17	166.00	2.99				
	Mann Kendall Statistic (S) =	14.0	-23.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	35.59	3.60	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	46.384	1.822	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.303	0.506	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend $\geq$ 80% Confidence Level		<b>INCREASING</b>	<b>DECREASING</b>	n<4	n<4	n<4	n<4
Trend $\geq$ 90% Confidence Level		No Trend	<b>DECREASING</b>	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>			Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

## Mann-Kendall Statistical Test

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Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-23S</b>			
Compound ->		GrossAlphaPart	Ra 226/228	Benzene	Arsenic		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	5.10	2.97	0.18	0.01		
2	2-Dec-08	8.10	6.79	0.13	0.00		
3	11-Jan-10	111.00	2.73	0.12	0.01		
4	6-Dec-10	22.50	5.40	0.11	0.00		
5	26-Jan-12	14.10	20.36	0.09	0.00		
6	30-Jan-13	33.30	14.36	0.05	0.01		
7	17-Dec-13	2.40	11.56	0.07	0.00		
8	10-Dec-14	56.80	21.76	0.07	0.01		
9	20-Jan-16	3.90	17.63	0.00	0.01		
10	8-Feb-17	32.50	16.18	0.06	0.00		
	Mann Kendall Statistic (S) =	3.0	23.0	-37.0	9.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	10	0	0
	Average =	28.97	11.97	0.09	0.00	#DIV/0!	#DIV/0!
	Standard Deviation =	33.562	7.136	0.050	0.003	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.158	0.596	0.570	0.643	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend $\geq$ 80% Confidence Level	No Trend	<b>INCREASING</b>	<b>DECREASING</b>	No Trend	n<4	n<4	
Trend $\geq$ 90% Confidence Level	No Trend	<b>INCREASING</b>	<b>DECREASING</b>	No Trend	n<4	n<4	
Stability Test, If No Trend Exists at 80% Confidence Level	<b>CV &gt; 1</b> <b>NON-STABLE</b>	NA	NA	<b>CV &lt;= 1</b> <b>STABLE</b>	n<4 n<4	n<4 n<4	
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>		Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-24D</b>			
		Compound ->	GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	6.50	3.44				
2	2-Dec-08	33.00	15.06				
3	11-Jan-10	14.50	1.73				
4	6-Dec-10	5.20	1.18				
5	26-Jan-12	0.90	1.54				
6	30-Jan-13	0.90	0.64				
7	17-Dec-13	9.80	0.24				
8	10-Dec-14	8.50	0.91				
9	20-Jan-16	7.00	3.81				
10	7-Feb-17	5.70	24.50				
	Mann Kendall Statistic (S) =	-10.0	-5.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	9.20	5.30	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	9.271	8.029	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.008	1.514	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		<b>CV &gt; 1 NON-STABLE</b>	<b>CV &gt; 1 NON-STABLE</b>	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>		Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-24M</b>			
		Compound ->	GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	12-Dec-06	10.90	0.20				
2	5-Dec-07	11.60	3.12				
3	2-Dec-08	8.80	2.91				
4	11-Jan-10	40.80	9.23				
5	6-Dec-10	25.50	3.86				
6	24-Jan-12	34.70	6.65				
7	30-Jan-13	16.40	4.49				
8	17-Dec-13	10.00	2.42				
9	20-Jan-16	36.00	8.20				
10	8-Feb-17	33.50	6.06				
	Mann Kendall Statistic (S) =	11.0	15.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	22.82	4.71	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	12.603	2.795	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.552	0.593	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend $\geq$ 80% Confidence Level		<b>INCREASING</b>	<b>INCREASING</b>	n<4	n<4	n<4	n<4
Trend $\geq$ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4
n<4		n<4	n<4	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>		Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-24S</b>			
		Compound ->	GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	3.60	1.85				
2	2-Dec-08	4.20	18.57				
3	11-Jan-10	7.50	0.40				
4	6-Dec-10	5.20	0.07				
5	24-Jan-12	4.60	3.50				
6	30-Jan-13	0.70	0.79				
7	17-Dec-13	6.50	0.41				
8	10-Dec-14	9.00	3.32				
9	20-Jan-16	30.60	0.25				
10	7-Feb-17	3.50	1.50				
	Mann Kendall Statistic (S) =	11.0	-7.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	7.54	3.07	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	8.425	5.585	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.117	1.821	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend $\geq$ 80% Confidence Level		<b>INCREASING</b>	No Trend	n<4	n<4	n<4	n<4
Trend $\geq$ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	<b>CV &gt; 1 NON-STABLE</b>	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>			Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

## State of Wisconsin

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-25D</b>				
		Compound ->	GrossAlphaPart	Ra 226/228				
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)						
1	5-Dec-07	11.70	3.40					
2	2-Dec-08	19.10	0.30					
3	11-Jan-10	10.50	1.40					
4	6-Dec-10	2.32	0.55					
5	24-Jan-12	6.10	1.23					
6	31-Jan-13	5.40	0.44					
7	17-Dec-13	0.40	0.82					
8	10-Dec-14	10.80	1.25					
9	20-Jan-16	4.00	0.11					
10	8-Feb-17	9.80	0.54					
	Mann Kendall Statistic (S) =	-15.0	-13.0	0.0	0.0	0.0	0.0	
	Number of Rounds (n) =	10	10	0	0	0	0	
	Average =	8.01	1.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
	Standard Deviation =	5.484	0.948	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
	Coefficient of Variation(CV)=	0.684	0.945	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4	
Trend $\geq$ 80% Confidence Level		DECREASING	DECREASING	n<4	n<4	n<4	n<4	
Trend $\geq$ 90% Confidence Level		No Trend	No Trend	n<4	n<4	n<4	n<4	
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	n<4	n<4	n<4	n<4	
n<4		n<4	n<4	n<4	n<4	n<4	n<4	
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>		Checked By = <b>AV</b>				

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>MW-25M</b>			
		Compound ->	GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	5-Dec-07	5.10	4.68				
2	2-Dec-08	18.80	7.29				
3	11-Jan-10	36.00	10.87				
4	6-Dec-10	14.40	1.76				
5	24-Jan-12	23.20	4.48				
6	31-Jan-13	18.30	18.08				
7	22-Jan-14	23.00	5.84				
8	10-Dec-14	82.50	8.34				
9	20-Jan-16	24.50	6.90				
10	8-Feb-17	28.60	5.39				
	Mann Kendall Statistic (S) =	21.0	3.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0	0
	Average =	27.44	7.36	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	21.029	4.490	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.766	0.610	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	n<4
Trend $\geq$ 80% Confidence Level		<b>INCREASING</b>	No Trend	n<4	n<4	n<4	n<4
Trend $\geq$ 90% Confidence Level		<b>INCREASING</b>	No Trend	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	<b>CV <math>\leq</math> 1</b> <b>STABLE</b>	n<4 n<4	n<4 n<4	n<4 n<4	n<4 n<4
Data Entry By = <b>AM</b>			Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : Textron, Texas City, TX				BRRTS No. =	Well Number = MW-25S		
		Compound ->	GrossAlphaPart	Ra 226/228	Beryllium		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	31.50	4.85	0.00			
2	2-Dec-08	8.60	39.90	0.00			
3	11-Jan-10	24.40	28.10	0.03			
4	6-Dec-10	20.80	37.39	0.01			
5	24-Jan-12	26.40	62.10	0.02			
6	31-Jan-13	123.00	60.60	0.02			
7	17-Dec-13	13.90	16.33	0.00			
8	10-Dec-14	63.30	92.50	0.02			
9	20-Jan-16	251.00	19.63	0.02			
10	8-Feb-17	93.60	66.20	0.01			
	Mann Kendall Statistic (S) =	19.0	15.0	8.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	65.65	42.76	0.01	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	75.117	27.159	0.011	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.144	0.635	0.774	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	
Trend $\geq$ 80% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend $\geq$ 90% Confidence Level		INCREASING	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV $\leq$ 1 STABLE	n<4	n<4	n<4
Data Entry By = AM			Date = 23-Mar-17	Checked By = AV			

## State of Wisconsin

## Department of Natural Resources

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>				BRRTS No. =	Well Number = <b>MW-32S</b>		
		Compound ->	GrossAlphaPart	Ra 226/228	Arsenic		
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)					
1	5-Dec-07	3.90	5.36	0.00			
2	2-Dec-08	11.00	2.11	0.04			
3	11-Jan-10	6.90	5.46	0.05			
4	7-Dec-10	25.40	9.14	0.01			
5	23-Jan-12	23.80	5.56	0.02			
6	31-Jan-13	4.80	34.97	0.03			
7	18-Dec-13	51.40	11.95	0.00			
8	10-Dec-14	141.00	24.11	0.01			
9	19-Jan-16	87.40	20.07	0.03			
10	9-Feb-17	78.30	21.95	0.01			
	Mann Kendall Statistic (S) =	27.0	29.0	-8.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	0	0	0
	Average =	43.39	14.07	0.02	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	45.807	10.697	0.017	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.056	0.760	0.835	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected				n<4	n<4	n<4	
Trend $\geq$ 80% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Trend $\geq$ 90% Confidence Level		INCREASING	INCREASING	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	CV $\leq$ 1 STABLE	n<4	n<4	n<4
Data Entry By = <b>AM</b>			Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

## State of Wisconsin

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## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>				BRRTS No. =	Well Number = <b>MW-61S</b>		
		Compound ->	GrossAlphaPart	Ra 226/228	Beryllium	Arsenic	
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	5-Dec-07	22.50	6.07	0.13	0.00		
2	2-Dec-08	7.90	3.53	0.09	0.04		
3	11-Jan-10	60.80	9.81	0.05	0.05		
4	7-Dec-10	13.70	14.79	0.47	0.02		
5	23-Jan-12	12.40	13.54	0.05	0.02		
6	29-Jan-13	32.40	7.03	0.02	0.02		
7	18-Dec-13	13.20	19.92	0.02	0.01		
8	10-Dec-14	149.00	5.51	0.02	0.01		
9	19-Jan-16	26.40	2.53	0.01	0.07		
10	8-Feb-17	16.90	2.78	0.01	0.09		
	Mann Kendall Statistic (S) =	7.0	-9.0	-32.0	8.0	0.0	0.0
	Number of Rounds (n) =	10	10	10	10	0	0
	Average =	35.52	8.55	0.09	0.03	#DIV/0!	#DIV/0!
	Standard Deviation =	42.684	5.843	0.140	0.027	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	1.202	0.683	1.613	0.813	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected						n<4	n<4
Trend $\geq$ 80% Confidence Level		No Trend	No Trend	DECREASING	No Trend	n<4	n<4
Trend $\geq$ 90% Confidence Level		No Trend	No Trend	DECREASING	No Trend	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		<b>CV &gt; 1 NON-STABLE</b>	<b>CV <math>\leq</math> 1 STABLE</b>	NA	<b>CV <math>\leq</math> 1 STABLE</b>	n<4 n<4	n<4 n<4
Data Entry By = <b>AM</b>			Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

**Notice:** This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.

**Instructions:** Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, provide at least four rounds and not more than ten rounds of data that is not seasonally affected. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "DATA ERR" or "DATE ERR" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If a declining trend is present at 80 percent but not at 90 percent, a site is still eligible for closure under Comm 46 and NR 746 provided that other conditions in those rules are met. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation for Petroleum Releases, dated October 1999. Refer to the guidance for recommendations on data entry for non-detect values.

## Mann-Kendall Statistical Test

## Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>NDC-1</b>		
		GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)				
1	5-Dec-07	27.70	1.19			
2	2-Dec-08	132.00	43.10			
3	11-Jan-10	638.00	59.56			
4	7-Dec-10	36.50	206.80			
5	24-Jan-12	1,677.00	339.50			
6	29-Jan-13	1,230.00	386.60			
7	18-Dec-13	295.00	42.24			
8	10-Dec-14	677.00	377.00			
9	19-Jan-16	1,400.00	275.40			
10	8-Feb-17	594.00	237.70			
	Mann Kendall Statistic (S) =	17.0	19.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0
	Average =	670.72	196.91	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	587.966	149.600	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.877	0.760	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level	<b>INCREASING</b>	<b>INCREASING</b>	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level	<b>INCREASING</b>	<b>INCREASING</b>	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

## State of Wisconsin

## Department of Natural Resources

## Remediation and Redevelopment Program

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## Mann-Kendall Statistical Test

Form 4400-215 (2/2001)

Site Name : <b>Textin, Texas City, TX</b>		BRRTS No. =		Well Number = <b>NDC-2</b>		
		GrossAlphaPart	Ra 226/228			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)				
1	5-Dec-07	14.30	2.82			
2	2-Dec-08	77.60	16.77			
3	11-Jan-10	349.00	62.98			
4	6-Dec-10	27.70	99.96			
5	24-Jan-12	605.00	175.40			
6	29-Jan-13	740.00	197.60			
7	18-Dec-13	777.00	231.00			
8	10-Dec-14	768.00	215.40			
9	19-Jan-16	673.00	41.77			
10	9-Feb-17	243.00	130.30			
	Mann Kendall Statistic (S) =	21.0	23.0	0.0	0.0	0.0
	Number of Rounds (n) =	10	10	0	0	0
	Average =	427.46	117.40	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	319.849	84.795	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.748	0.722	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected			n<4	n<4	n<4	n<4
Trend ≥ 80% Confidence Level	<b>INCREASING</b>	<b>INCREASING</b>	n<4	n<4	n<4	n<4
Trend ≥ 90% Confidence Level	<b>INCREASING</b>	<b>INCREASING</b>	n<4	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	n<4	n<4	n<4	n<4
Data Entry By = <b>AM</b>		Date = <b>23-Mar-17</b>	Checked By = <b>AV</b>			

**Attachment 2**  
**NORM Monitoring Results**  
**December 2016**

**Tex Tin Superfund Site  
Texas City, TX**

**Prepared by: Project Navigator Ltd.**

**For**  
**Tex Tin Settling Defendants**

# NORM Cell Grids And Highest Readings (in uR/hr)

	1	2	3	4	5	6	7	8	9	10	11
A	9.0	10.0	9.0	10.0	9.0	9.0	10.0	9.0	10.0	9.0	10.0
B	9.0	9.0	9.0	9.0	10.0	9.0	9.0	10.0	10.0	10.0	9.0
C	9.0	9.0	10.0	10.0	10.0	9.0	10.0	10.0	9.0	10.0	9.0
D	10.0	10.0	11.0	10.0	9.0	10.0	9.0	9.0	10.0	9.0	9.0
E	10.0	11.0	10.0	10.0	9.0	9.0	10.0	9.0	9.0	9.0	10.0
F	9.0	10.0	9.0	9.0	10.0	10.0	9.0	10.0	10.0	10.0	10.0
G	10.0	9.0	9.0	10.0	10.0	10.0	10.0	9.0	9.0	9.0	9.0
H	9.0	10.0	9.0	8.0	9.0	9.0	10.0	10.0	10.0	9.0	9.0
I	10.0	9.0	10.0	10.0	9.0	10.0	9.0	9.0	10.0	10.0	10.0
J	9.0	10.0	9.0	9.0	10.0	10.0	10.0	9.0	9.0	9.0	10.0

N  
E  
W  
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R  
Y

**FORM OMM-4****NORM CELL INSPECTION FORM  
(FIELD FORM)**Project Name Tex Tin Operations and MaintenanceDate 12/21/2016

Project No. \_\_\_\_\_

Inspected by Mike Phillips IIWeather Clear 63°

INSPECTION ITEM	YES/NO	NOTES
• Is NORM cell gridded into 25 ft by 25 ft grid?	Yes	
• Is gamma radiation instrument calibrated?	Yes	
• Are the highest readings at each grid node recorded on the attached figure?	Yes	
Calculations	Result	Notes
• Calculate average gamma radiation	9.51 uR/hr	
• Subtract background radiation level of 8.6 uR/hr	8.6 uR/hr	
• If the resulting gamma radiation value is less than 7.5 uR/hr, which is the maximum exposure rate set by the EPA, the NORM Disposal Cell passes inspection;	0.91 uR/hr	Passes Inspection
• If the resulting gamma radiation value is greater than 7.5 uR/hr, the NORM disposal cell fails inspection and a further assessment may be required.		